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To cognize X is to be X

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Abstract:

When I cognize a substance do I thereby enter into a special relationship with this substance? It is tempting to say that I do. When I stone-cognize, for example, I seem to be related to the stone in a special way. But how do I best characterize this relationship? Do I cognize the stone directly? Is it given to me *as it exists* in the paddock? Can I be *mistaken* about this stone? Many philosophers are reluctant to say that the stone is available to me directly. They find that paddock-stones (and the like) are not the sort of things which comfortably (*reliably*) accrue to souls or minds. They bruit some third thing. This third thing stands between the cognizer and the mediate cognizeable. Aristotle, for example, suggests that when I stone-cognize it is not the stone itself in my soul, but rather *the form* of the stone. He proposes a sufficient condition for cognition which exploits immaterial form (thus): *to cognize X is to have the form of X (devoid of its matter component) accrue to the soul*. This model purports to uniquely characterize a cognitive episode. We vet the model. And, reaching aporia - given the rather blunt metaphysical resources endorsed by the Stagirite - ask for refinement. Thomas Aquinas superadds to the model. His cognitive sentences invoke *esse intentionale* forms. For Aquinas world items come in two flavours: natural and intentional. A natural stone is answered by the lapidary object sitting in the paddock. An intentional stone, however, is the stone which accrues to my soul whenever I cognize the lapidary object. Are the two stones stones? Yes, but clearly one of the stones *is* a stone in some nonstandard way. Does this not undermine the special connection? We next discuss *early-modern* empiricism. John Locke's surrogates are mental *ideas*. STONE* flags a Lockean idea. But it is not a simple. It should properly reduce to the likes of, say, ROUND* and WHITE*. Ontological problems however, linger. Is ROUND* *round* (WHITE* *white*)? Yes (and no). But how can a mental item *be round*? We ask *the idea* to reveal something of its simple cause. And move forward to a reasonably contemporary strain of empiricism, *viz.*, sense-datum theory. This theory identifies immediate cognitive objects with *appearances*. I never cognize substances directly. I only cognize sense-data. I cannot be mistaken about these items. They are single-property logical objects. Theory, under close analysis, terminates in monism. Which result, we proffer, illuminates the paradoxical nature of cognitive surrogacy. Cognizeables must *be* their mother objects in a way which undermines *standard* reality. Cognition seems inextricably linked with predication.

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This thesis is dedicated to the memory of Linley Webster Hall (1919-2000), who soliloquized prudently, administered Bordeaux admixtures to metatheoretical bouquets, & played patience late into the night.

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A Note on Method:

This study is a philosophical investigation; it is not, primary, an exegesis of doctrine. Texts will be treated with respect, but any doctrinal points they arouse are likely to be of secondary interest. Sundry interpretations will never pretend to be uncontroversial, final or exhaustive. Iconoclasm (likewise) is a chore. We have no time for it. When a passage cries out for theoretical emulsification, analysis will not be content to settle for quasi-technical *solutions**. Sometimes explanations will be permitted to end early (yes). Sometimes not. Much of the discussion, as it turns out, involves a choice between candidate simples. These simples may pretend to *comprise* a cognitive model. Costive vernacular tests vet the models. They must convince the layman. Once the general *problem* is made clear, it will be plain whether a model satisfies.

And what is the general problem?

Straightforward.

We want a non-circular model of cognition. One which explicates cognitive content. One which flags a sufficient condition of cognition. Prospective models are ventilated and scrutinized. Context must be won, but not to the extent that our explicanda are masked. Scholarly consensus vitiates philosophical fertility. It is denied entry into the study. Conceptual rigor operates, but not at the expense of philosophical narrative. We keep reminding ourselves of the problem in the vernacular. Oftentimes the predicament we find ourselves in is less than elegant. How do I shew myself that I understand a process which I perform day in day out? Is it enough to say that certain operations are primitive? Can the recondite co-exist with the banal? Forget about doctrine. What sorts of solutions are being proposed. Are they any good?

* Can I provide an example of a quasi-technical solution in this context? Yes. Consider an exegesis that disagrees with *our* interpretation of the Aristotelian cognitive model. *We* find that Aristotle's model treats of form transactions between substances: men and stones, for example. Imagine that the following objection to this interpretation were raised. Aristotle's cognitive model properly runs between *parts of cognizers* (sense-organs, say) and *special* objects. These special objects, it may be suggested, include accidents like *colour* and *shape*. What will be our rebuttal to this contrary interpretation? Straightforward. We will say that it makes no difference to our problem. No matter the exact nature of the subjects and the objects. Pick out an eyeball (an olfactory gland) and an accidental form. What is philosophically important is the cognitive *relation*. Identifying quasi-technical items as *relata* does nothing but postpone the problem. What is cognition? Variations upon nomenclatures will not make this question disappear. Nor will ostending ears, glial cells, lattice surfaces and *special objects*.

A Note on Primary Materials:

A glance at the Primary Materials section of the bibliography (p. 128) will show that a variety of translations of the original texts of Aristotle & Thomas Aquinas have been cited, consulted, pilfered and admired. In the case of the Aristotelian translations where & when it is deemed helpful to compare translations the relevant texts have been made salient in the analysis. In the case of two translations of Aquinas' work (*A Commentary on Aristotle's de Anima & On Being & Essence*) I have given the passage & then supplied the translator's name (*Pasnau & Bobik*, respectively). It was thought that this style of reference would avoid confusion thanks to the pungency of the authors' monikers. Whenever the Greek or the Latin is given the autonomous text can be tracked down in the Primary Materials. Only in the Blackfriars editions of the *Summa Theologiae* are the original Latin & the English translation supplied by the publisher. References to Locke's *Essay* are given (in arabic numerals) as follows: Book, Chapter, Section. All passages are drawn directly from Nidditch's edition (Clarendon, 1975).

*To cognize X is to be X: predication, surrogacy, & the adoption of a truly sufficient ontic stance**. A study in the metaphysics of various empiricist accounts of cognition. A tradition which includes Aristotle, Thomas Aquinas, John Locke and (among others) Charles Dunbar Broad.

* This thesis is presented by myself, Mark Webster Hall, to partially fulfill the requirements of a Master of Arts degree in Philosophy at Massey University, completed May 2003.

To sense red(ly) is to sense in a certain way; it is not to be related to a certain object. Similarly, I suggest, to be red is to be a certain way; it is not to be related to a certain object (Van Cleve, p. 584).

Suppose one said "The barber cuts hair only indirectly, because he uses his hand." .. you ask "What would it be like to cut hair directly?" (Rhees, p. 13)

'No' is, in general, a better answer than 'Yes' (O'Brien, p. 26).

a1: Introduction.

Aristotle famously claimed that if an eye were an animal then sight would be its soul (*de Anima* 412b17). The analogy works by zeroing in on the most characteristic activity of a putative organism and then flagging that activity as the feature *by virtue of which* the organism is alive. A reductionist account of the organism fails, according to the Stagirite, if it does not capture this relationship between the entity and its living acts, its living ends.

A successful account of the human animal must likewise pinpoint the relationship between what the organism is and what the organism does. More properly, the account must emphasize the full moiety of existence and activity, treating the two aspects as a necessary match.

It is important to note that the living eye draws 'sight' as its soul, and not 'seeing'. Equally, were we to draft a list of activities that we deemed most characteristic of man we would have to flag such as features *by virtue of which* an individual man were alive. This flagging (of 'sight' and not 'seeing') implicates the activity in a causal chain of being. The activity in its proper inflection keeps the man alive, turning 'does' into 'is'. Reciprocally, the existence promotes the activity itself; remaining in being the eye is able to activate sight. Thus we might endorse the activity of cognizing (and then flag it as 'cognition')¹. Which we, in fact, do.

¹ Hereby we propose a conflation which will prove heuristically advantageous. Cognition will, in this

Given modern prejudices a propos the soul some of the activities Aristotle would endorse might strike us as inappropriate (some as obscene). Aristotle would not hesitate to endorse locomotion as a characteristic feature of human life. Nor would he be reluctant to include the digesting of pap and the cranky expense of copulation. All candidates, the Stagirite would claim, are conducive to human flourishing². Let us not give in to prejudice by refusing to entertain mundane happenings as psychic³ events. For one thing that is not what we are doing. We are merely following the pattern laid down by the analogy of the living eye.

Were *X*-ings and *Y*-ings characteristic activities of man then we would be authorized to endorse *X*-ion and *Y*-ion as features *by virtue of which* an individual man were alive. This is not the same as saying that were *X*-ing a characteristic feature of man then *X*-ion would be a psychic activity. In following the pattern we are saying that were *X*-ing and *Y*-ing and *Z*-ing characteristic human activities (and activities *X*, *Y* and *Z* as a tripton)

study, flag both thinking and perceiving. If we agree to this then the device points at something like a seamless activity which may (later) provide the raw material for multigrade claims of knowledge. It will become apparent, however, that most of our attention is cast upon the perceptual pole of any cognitive continuum. Favoured paradigms of cognition will (thus) be simple episodes of a man's eyes, say, latching onto table, horse, stone. Abstract thought, as such, will receive little attention. For textual support for this gentle conflation I point to Saint Thomas (thus): "*In habentibus autem cognitioname, sic determinatur unumquodque ad proprium esse naturale per formam naturalem quod tamen est receptivum specierum aliarum rerum. Sicut sensus recipit species omnium sensibilium, et intellectus omnium intelligibilem, ut sic anima hominis sit omnia quodammodo secundum sensum et intellectam* [Things that know are each fixed in their natural being in such a way as to receive forms from other things. Sense receives sense forms, the understanding receives intellectual forms, so that by sense and understanding the soul of man is in a certain manner everything] (*Summa Theologica* 1a, q.80, art. 1 *responsio*)". The point being that both cognitive *objects* of sense and intellect share common nature with the cognitive products (sensation *and* intellection). At least this is the claim. Moiety of content, if you will, is the pivot of all our cognitive models. Its extension - as well as its strength and weaknesses - will become clearer as we go on.

² If I don't eat, then I die. My eating pap promotes my life. Few would deny this. But many might deny this: that the life-promoting features of my pap-eating should lead me to entertain pap-eating as a part of my soul. Michael Frede identifies this broad entertainment as Aristotelian: given a list of activities - defecating through snoring through pondering - "Aristotle refuses to divide this list into two parts, a list of, as we might say, physical doings and a list of mental doings. He refuses to assume that the soul is the proper subject of the latter, that it has, as it were, a life of its own constituted by these mental doings, whereas the animate object is merely the subject of the physical doings (Nussbaum & Rorty, p. 96/7)".

³ "No ordinary English term is broad enough [to answer to the Greek conception of *psyche*], and the cognate 'psychic' rings all the wrong bells (Caston 1997, p. 319)."

completed the set) then *X-ion* and *Y-ion* and *Z-ion* would be the human soul. If we could read off, say, copulation and locomotion and cognition as an amalgam, then, certainly, this would follow the pattern. We would have provisional result. Copulation + locomotion + cognition would be the human soul. But even if such an amalgammization were viable the ploy would not be kosher. We want to flag, say, locomotion and cognition as features *by virtue of which* a man is alive. And we want to say that this flagging picks out the unique relationship between a man's activity and a man's existence. This unique relationship between activity and existence is what the notion of the soul flags. And that is all we want to do. We do not want to ennoble some activities by endorsing them as psychic and debase others by leaving them out. We want to ditch our prejudices concerning putative psychic entities and episodes. We want to treat of the Aristotelian notion of soul as a provisionally useful designation of a unique relationship. We have pointed out that the unique relationship is that between what an organism does and what an organism is. We do not want to draw conclusions as to whether the unique relationship deserves hypostasis or no. Conclusions will have to wait. We have enough, I suggest, to be going on with.

a2: Endorsing cognition as a characteristically human activity. Examining the Aristotelian account of cognition. Picking out the key metaphysical furnitures which fund this account.

What exactly *do* we have to be going on with? Thanks to an analysis of the living eye analogy we have an *aperçu* into both Aristotelian method and Aristotelian ontology. Thanks to a treatment of a supple philosophical ploy (the generating of candidate definitions of *psuche*) we have thrown up a number of possibilities a propos the uniquely characteristic features of living man: notably, copulating, locomoting and cognizing. These candidate activities have not been fully endorsed as *characteristically* human. Allow that we provisionally endorse the last of them (and save face). Allow that we provisionally endorse the activity of cognizing. Do we agree that cognizing is a viable candidate? Candidate for what? Candidate for an act that sustains human life, promotes human flourishing. Yes, we do. Such agreement kicks off the research programme. In treating of Aristotelian accounts of cognition we invite the Stagirite to bolster a rudimentary account of *psuche* with more established

and theoretically primitive philosophical principles and objects⁴. The treatment of the accounts must attend to theoretical coherence and consistency, and to plausibility and productivity in the field. Let us begin. What sort of account does Aristotle propose? What sort of philosophical resources does Aristotle draw upon to fund cognitive theory?

The Aristotelian account of cognition as presented in *de Anima* appears, *prima facie*, to ask that a bold and abstract relation hold between cognizer and cognizable. The theory exploits a potentiality/actuality split which, in turn, works off a matter/form ontological divide. It is virtually impossible to attend to the cognitive transaction without delving into these abstractions. The principles given above are so regularly evoked that they must be given some consideration at an early stage of the inquiry lest the whole explication drift off into fug. A number of examples will suffice to establish the general tone of the proposed transaction (thus):

... what has the power of sensation is potentially like what the perceived object is actually; that is, while at the beginning of the process of its being acted upon the two interacting factors are dissimilar, at the end the one acted upon is assimilated to the other and is identical in quality with it [*to d'aisthetikon dunamei estin oion to aistheton ede entelecheia, kathaper eiretai. paschei men oun ouch homoion on, peponthos d'omoiotai kai estin oion ekeino*] (dA 418a3-6).

What can be touched are distinctive qualities of body *as* body; by such differences I mean those which characterize the elements, viz. hot cold, dry moist, of which we have spoken earlier .. The organ for the perception of these is that of touch - that part of the body in which primarily the sense of touch resides. This is that part which is potentially such as its object is actually: for all sense-perception is a process of being so affected; so that that which makes something such as it itself actually is makes the other such because the other is already potentially such [*aptai men oun eisin ai diaphorai tou somatos e soma. lego de diaphoras ai ta stoicheia diorizousi, thermon psuchron, xeron hugron, peri on eirekamen proteron en tois peri ton stoicheion. to de aistheterion auton to haptikon, kai en ho he kaloumene aphe huparchei aisthesis proto, to dunamei toiouton esti morion. to gar aisthanesthai paschein ti estin. hoste to poioun, oion auto energeia, toiouton ekeino poiei, dunamei on*] (dA 423b27-424a2).

The closing sentence of this latter passage is perchance the most blatant

⁴ The business of the primitiveness of a philosophical object will become more salient as our examination of theory progresses. An example of a primitive object might be a soul, might be a sense-organ, a form, an aggregate of all three. Such examples have yet to be touted, yet to be tested. At this stage let us take 'primitive' to mean simple, unanalysable. Alas, we cannot take simple to mean theoretically transparent, straightforward.

exploitation of the potentiality/actuality split (and the most general). We are informed that all sense-perception can be suitably characterized as a process in which an *X* is affected by a *Y* in a particular fashion. In a particularly abstruse and strange fashion. The clause in question requires a second reading. The process is that in which an *X* is affected by a *Y* "so that that which makes something such as it itself actually is/ makes the other such because the other is already potentially such ["/" mine]". I don't know that a second reading draws blood. Let us compare Ross' translation of the clause (which we have just provided) with Ackrill's. Ackrill's translation of the clause is the more limpid. Thus: "(the process is that in which an *X* is affected by a *Y* such that) that which acts makes that part, which is potentially as it is, such as it is itself actually". A translation of the translation is called for. Let us first of all identify the protagonists in the putative cognitive transaction.

What is *X* in this case? What is *Y* in this case? *X* in this case is that which is being affected. That which is being affected is that which is perceiving. That which is perceiving is in this case the sense-organ of touch. *X* is the sense-organ of touch. *Y* is that which affects (in this case) the sense-organ of touch. A candidate protagonist for *Y* in this case would be, I proffer, some sort of material object. Let us suggest that in this case *Y* is a rock. Suitably populated our putative cognitive transaction is inflected thus:

"The process of (touching) (a rock) is that in which the sense-organ of (touch) is affected by (a rock) such that (the rock) makes that sense-organ of (touch), which is potentially as (the rock) is, such as (the rock) is itself actually."

Successful inflection of a translation of a translation? We have mustered, it seems, some sort of schema with which to work with the proposed cognitive transaction. We can begin to see what sort of transaction is being proposed. The schema certainly allows of a variety of inflections. After all, we can swap the sense-organ of touch for the sense-organ of sight and exchange the rock for a battleship and win a novel inflection. We could win any number of inflections for the schema and map them according to a singular method. And it is this method which we are interested in here. And it is the philosophical flavour of this method which is rather strange. What can it mean for the sense-organ of touch to be affected by a rock such that the sense-organ of touch becomes potentially as the rock is actually? What can it mean for the sense-organ of sight to become potentially what the battleship is actually (as a direct result of their standing on respective sides of a sense-perception

transaction)? Further, a sense-organ standing to an actual battleship as a potential battleship would seem (in accordance with this schema) to constitute a successful sense-perception. So authorized by such a schema an obstinate commentator may read it that being a potential battleship implied candidacy for sense-organ status. Which result would, at the very least, permit of a weird identification test for putative sense-organhood. Can we imagine the following conversation? Avuncular taxonomist: "I'm looking for instances of ocularity". Sanguine and heterodox expansionist: "Have you considered potential battleships?" Can we allow of such bizarre implications? Well, there is nothing *clearly* pathological about such extensions of the criterion. Until we have treated comprehensively of the Aristotelian notion of what it is to be *potentially X* and what it is to be *actually X* it would be charitable to suspend judgement. I submit that we need to tackle two questions (in order that we generate the suspense). Question 1: What philosophical work is the potentiality/actuality split being asked to do in the Aristotelian account of the cognitive transaction? Question 2: Does the p/a split do that work (whatever it is) plausibly and efficaciously?

a3: Investigating the theoretical role of the p/a split. Explicating the problem of cognitive content. Evading routine aporemata. Inflecting the cognitive schema with the hope of discriminating between candidates.

The philosophical work that Aristotle expects the p/a split to do concerns the need to explicate cognitive content. Cognitive content can best be understood by comparing the situation of a candidate cognizer (with respect to a particular cognitive transaction) with the situation of a candidate non-cognizer. For there seems to be something *special* about the relationship between a cognizer and a cognizable, something that is absent when we consider the relationship between, say, two, cognizables (two, say, material objects)⁵. We may resort to an example. As an example of a candidate cognizable let us nominate a man. As a candidate cognitive

⁵ 'Special' is deliberately vague. The philosophical heritage of the problem of intentionality is such that we chose to begin this project without explicit reference to her bloated contours. That when I see a cow I may go on to develop propositional attitudes to that cow is not contested. That I may think about that cow when she has departed from this glebe, that I may exploit such thoughts to refer to absent animal: likewise uncontested. We chose to nurture a simpleton's understanding of the perceptual relationship between cow and I. This will abate. It will be vitiated by a highly procedural, professional approach to aboutness and intentional inexistence.

transaction let us propose that same involves a man seeing of a rock. What would constitute a plausible candidate non-cognizer? A candidate non-cognizer would be perchance another rock. Let us set up a candidate non-cognitive episode in which one rock falls upon (and settles next to) another. Now in one case, it is proposed, we have generated a cognition (man seeing of rock). In the second case (rock falling upon rock, becoming juxtaposed thereupon to second rock) no cognition has occurred. Why do the two cases differ? Why does the first rock not cognize the second rock? Why do we allow ourselves to say that a man is prone to rock-cognizing but that a rock is not so prone? The philosophical explication of cognitive content attempts to answer this discrepancy. The discrepancy may seem too banal to deserve of attention. The discrepancy is *so* banal that it deserves of special attention⁶. In accounting for the discrepancy we are required to explicate *fully* the transaction of cognition (beyond stipulating that men cognize and rocks do not).

Aristotle is well aware of the requirement. How does Aristotle propose to generate an account of cognitive content? The Stagirite edges his way forward (and back) in a fascinatingly aporematic passage. We observe the peripateia next:

Can what cannot smell be said to be affected by smells or what cannot see by colours, and so on [*aporeseie d'an tis ei pathoi an ti hup'osmes to adunaton osphranthenai, e hupo chromatōs to me dunamenon idein*]? It might be said that a smell is just what can be smelt, and if it produces any effect it can only be so as to make something smell it, and it might be argued that what cannot smell cannot be affected by smells and further that what can smell can be affected by it only in so far as it has in it the power to smell (similarly with the proper objects of all the other senses). Indeed that this *is* so is made quite evident as follows. Light or darkness, sounds and smells leave *bodies* quite unaffected; what does affect bodies is not these but the bodies which are their vehicles, eg. what splits the trunk of a tree is not the sound of the thunder but the air which accompanies thunder. Yes, but, it may be objected, bodies are affected by what is tangible and by flavours. If not, by what are things that are without soul affected, ie. altered in quality? [*ei gar me, hupo tinos an paschoi ta apsucha kai alloioito;*] Must we not, then, admit that the objects of the other senses also may affect them? Is not the true account this, that all bodies *are* capable of being affected by smells and sounds, but that some on being acted upon, having no boundaries of their own, disintegrate, as in the instance of air, which does become odorous, showing that *some* effect is produced on it by what is odorous? But smelling is more than such an affection by what is odorous - *what* more? (*dA* 424b4-18)

⁶ We are alert to the *volume* of rival banalities (Wittgenstein 1998, p.161e).

What indeed? The problem survives the interrogation. If smelling is no more than being affected by what is odorous, and if all bodies are affected in some way by what is odorous, then all bodies can be said to register smells. But we do not say that tables smell pumpkin soup, rotten meat. But we *do* say that men, dogs, cats smell pumpkin soup, rotten meat. Smelling, therefore, is more than a body's being affected by what is odorous. *What* more? If we confine the problem by imposing strict conditions a propos the candidate bodies prone to being so affected, then we evade scrupulous solution. To say that men, dogs and cats can smell pumpkin soup (rotten meat) because they are men, dogs and cats, and that rocks, suitcases and trees cannot smell pumpkin soup (rotten meat) because they are not men, dogs and cats is just too stolid a resource. A slightly more plastic response might be to propose that men are affected by odours in a very particular way and to propose that suitcases are not affected by odours in that very particular way. Aporia infringes again, however, once this response wins the riposte "In *what* very particular way?" The very particular way is, of course, noneother than the very *cognitive* way. And the cognitive way is to all intents and purposes our explicandum. It is fruitless to point towards cognitive ways and ask that they explicate cognitive contents. We want of a more formal and fertile explication. Fortunately Aristotle has a more philosophically useful approach to explication. His answer to "*What* more? (and sister query "In *what* particular way?") involves the exploitation of the potentiality/actuality split. We have already mustered a schema (formula) approximating same. Let us revisit the inflected formula of the cognitive transaction (as won above):

"The process of (touching) (a rock) is that in which the sense-organ of (touch) is affected by (a rock) such that (the rock) makes the sense-organ of (touch), which is potentially as (the rock) is, such as (the rock) is itself actually."

Now this formula is *not* set up to preclude certain entities (rocks, suitcases, trees) from cognizing. The only trouble likely to be found when running this formula with, say, a suitcase, smelling, say, an orchid, would be the rather egregiously philosophical ploy of attributing a sense-organ to a suitcase. Attributing a sense-organ to a suitcase would seem to be absurd regardless of whether we have been successful or not in explicating the business of cognition. And we do not wish to achieve absurdity so easily. The problem for the formula as it stands is that it is already set up to favour the most likely candidate cognizers (men, dogs, etc.). This is not what we wish for here. We wish to procure a method of explicating both

1, the ability of men and dogs to cognize, and 2, the inability of suitcases, rocks and trees to do likewise. The formula, with this in mind, should not advantage either group prior to a trial. The formula, with this notion of non-advantage in mind, should not recognize that there are such groups, such groups as candidate cognizers and candidate non-cognizers. The formula should treat of all candidates as likely candidate cognizers and as likely candidate non-cognizers. The inflecting of the formula should discriminate between the candidates in exactly this respect. At the end of each run we should be able to say whether the candidate was prone to cognize or not so prone. How can we fix the formula so that it is neutral in this regard?

The first thing we should do is eliminate mention of sense-organs. If we leave in mention of sense-organs then we have already decided which candidates will pass the cognition test and which will fail (prior to running of same). This is contraindicated. Do we have textual support for eliminating mention of sense-organs? We do. Our textual support comes with the following quotation:

The sense and its organ are the same in fact, but their essence is not the same. What perceives is, of course, a spatial magnitude, but we must not admit that either the having the power to perceive or the sense itself is a magnitude; what they are is a certain ratio or power *in* a magnitude [*aistheterion de proton en o e toiaute dunamis. esti men oun tauton, to d'ainai eteron. megethos men gar an ti ein to aisthanomenon, ou men to ge aisthetiko einai oud' he aisthesis megethos estin, alla logos tis kai dunamis ekeinou*] (dA 424a25-29).

The conflation of the organ with the faculty helps us, I submit, to properly inflect our formula. The suggestion here is that the organ and the faculty can be considered as a unity. For the purposes of the exposition of doctrine we will take this to be a profitable stipulation. And we will squeeze something else into the conflation, namely the candidate cognizer. In time, I predict, we will want to treat of a reasonable complex molecular cognitive episode. Such an episode will involve a number of the senses and it will involve (in turn) the owner of same. The proposal is that we treat of the candidate cognizers as that which cognizes. This does not seem too grandiose a proposal⁷. It is not necessary that we take candidate

⁷ It is important to know why this proposal is not grandiose. The matter turns on the heuristic slant of *our* project. We choose to focus on the relationship between candidate cognizer and candidate cognizeable. What each actually *is* is of secondary importance. Whether cognitive subject is eyeball, eyelash, glial cell or homunculus is philosophically uninteresting. A cognitive object might be a table, a

cognizer and cognitive-faculty (in turn) to be numerically the same though differing in essence. For the time being the flavour of the philosophical description can be underdetermined. All we wish for is that the candidate cognizer *go into* the formula. We wish that the candidate (whether the candidate be man, dog, orchid .. suitcase) go (neatly) into the left hand side of the formula. Allow that the candidate so (neatly) go. For such dispensation will generate a novel (freshly inhabited) inflection. Next we scrutinize candidates.

a4: The cognitive formula is inflected and doubletested. A series of atomic transactions is generated and evaluated. The onus is on the formula to discriminate between candidates.

Grant that our first candidate (cognizer/non-cognizer) be a woman. Grant that our first candidate cognitive transaction be that of a woman following with her gaze the path of a Japanese songbird (the uguisi) as it alights upon a plum tree. For simplicity's sake we will not make the candidate cognitive transaction too molecular a transaction. For simplicity's sake we will stipulate that the woman be prone (or not be so prone) to *see* the songbird in its path (or not be so to *see*)⁸. The formula

coloured patch, an open-textured grid. Likewise uninteresting. What is the cognitive *relation*? How can we generate a non-circular model for cognition? This is what matters. The expansion of the organ of sense to the sensing *being* beckons no more than a naturalizing of the philosophical idiom. We can treat cases *as if* they involved men and tables. Our desideratum, however, is a cognitive formula which would embrace a wide range of candidate subjects and objects. It should bolster our pretheoretical intuitions as to which candidates *fit* into a cognitive formula. The intuitions should not short-circuit the analysis.

⁸ For "to see" read *also* "to cognize". Read also "to see *thereby* to cognize". And at this point it might be plain that the proposed elimination of sense-organs is makeshift and bogus. For what is it to see without an eye *seeing*? Granted. But bear with the examination. Our desideratum (here) is a plausible cognition without necessarily identifying a *specified* role for the sense-organ of sight. We want to extract the eye and generalize to the cognition. The fruitfulness of this extraction-generalization will be reviewed (perchance costively). The hope is that our heuristic errors will provoke helpful theoretical complaint. I should like, however, to ventilate an argument *in favour* of a less parochial approach to a sense-organ's *necessarily* being involved in a cognition. An argument? More an invitation to an argument, in fact - it is raised by Friedrich Waismann (thus): "... suppose it was discovered that, in certain rare and strange circumstances, people can see with their eyes shut? Can I not imagine that, say, by rubbing my eyelids with a certain mixture, they suddenly become transparent like glass? Wouldn't you at least *understand* what I mean? Couldn't you, for instance, follow such a story from the Arabian Nights? Certainly; but what if I now ask you, 'How can you even *imagine* such a thing, considering that it is self-contradictory? How can you give *sense* to these words?' It seems that you ought not to understand them. On the other hand, is it not quite easy to imagine such a situation? In calling your attention to such, if only fictitious cases, my object is to make you see to what extent non-linguistic, experiential factors come into play here. Indeed, you may think up even more fanciful situations in which a person may be said to see, for instance, with his skin. ... In fact, after you have vividly imagined a number of such possibilities, you may

thus wins new inflection:

"The process of (seeing) (a Japanese songbird/ alight upon a plum tree) is that in which (a woman) is affected by (a Japanese songbird) such that (the Japanese songbird) makes that (woman), which is potentially as (the Japanese songbird) is, such as (the Japanese songbird) is itself actually."

Picturesque epiphany! Indeed. We can be pleased with our new inflection (aesthetically). Can we be pleased with our new inflection philosophically? This is not so clear. The notion that a woman be a potential Japanese songbird is no less abstruse a notion than the notion that an eye be a potential battleship. We have vowed, nonetheless, to suspend our judgement with respect to the abstruseness of the p/a split's being crossed. Judgement so suspended we move on and ask the next question: Does the freshly inflected formula identify the woman as a cognizer (as one who has *seen* a Japanese songbird alight upon a plum tree)?⁹ Well, the formula only explicitly identifies a successful cognizer *if* the notion of a woman being a potential uguisi secures plausibility. We *can* make sense of the woman seeing the Japanese songbird at this juncture, but only if we can either explicate or jettison the machinery of potentiality/actuality. If we jettison the machinery, then we must exploit our pretheoretical intuitions concerning the likelihood of women seeing Japanese songbirds (in conditions *Q* through *P*¹⁰). These pretheoretical

feel that there is *no point* in arguing from the use of language only; instead you may be prepared to say 'Of course, it is *experience* which teaches that I cannot see without eyes'. Yet at the same time you can't help being worried by this account, because you feel that it would be most unnatural to say that 'When I see you, my eyes are open' is an empirical statement in just the same sense in which, 'When I write, I hold a fountain pen in my hand', is. In this situation you may feel a strong need to use some such expression as this. The first statement, you will perhaps say, *if it is empirical*, is at any rate *less empirical, more a priori, or less contingent and more necessary* than the second; again you may say that the first statement is *very nearly, or almost analytic*, whereas its opposite, i.e. the statement 'I need not have my eyes open when I see you' or 'I can see you though my eyes are shut' comes *very close* to a contradiction without being one [Waismann, 1968. pps. 164-4]."

⁹ Of course, we cannot expect successful *empirical* verdict because the case-study is an abstract thought-experiment. There is no plum tree, no Japanese songbird. What we seek is a grammatically satisfying result. *After the model*, can we say that perception has occurred if the woman has been affected by the uguisi such that she was (at the moment of perceptive success) an uguisi? Yes or no?

¹⁰ Reasonably optimum *Japanese-songbird-seeing* conditions: decent light, opaque backdrop, minimum glare, sober candidate perceivers.

intuitions are the ones that the formula was supposed to circumvent (and *explicate*). Allow (then) that we abandon the formula. Not so fast.

The hope was that the freshly inflected formula would help distinguish between episodes of cognition (affect *plus* cognitive content) and episodes of affect (alone). The hope was that the staging of candidate cognitive episodes with the augmentation of the p/a split would help explicate cognitive content. Part of that explication would involve discriminating between candidates. The new formula should be able to discriminate between genuine cognizers and all others. As we have only run one test we cannot properly evaluate the results. We must be able to compare the results of each test (in turn), compare them with our pretheoretical intuitions. We have run one test which our intuitions told us would have been a credible instance of the cognitive transaction (had we ditched the abstruse philosophical machinery constituting doctrine). Permit that we now stage a test in which the expectations of success are weighted in the other direction. Permit that we run an inflection of the formula our intuitions tell us *should not* yield a genuine cognitive episode. Permission granted. Bring on the suitcase (keep the Japanese songbird). Our masque is shorn of a woman, seeded of an object (thus):

"The process (of seeing a Japanese songbird/ alight upon a plum tree) is that in which (a suitcase) is affected by (a Japanese songbird) such that (the Japanese songbird) makes that (suitcase), which is potentially as (the Japanese songbird) is, such as (the Japanese songbird) is itself actually."

Our pretheoretical intuitions suggested that the piece of luggage should not be endorsed as a successful cognizer. Has the formula concurred with these intuitions and eliminated the suitcase from the cognitive inquiry? Unfortunately not. We can only deny the suitcase a successful cognitive episode if we can deny that a suitcase can be a potential Japanese songbird. We lack the necessary criterion with which to deny that a piece of luggage can be a potential *uguisu*. We are in the same position with respect to the crossing of the p/a split as we were when we interrogated eyes and battleships, women and Japanese songbirds. This is disappointing. The formula has been unable to discriminate between candidate cognizers and candidate non-cognizers. Without clarifying the business of a candidate cognizer becoming (in some way) a potential cognizable we are stuck at *aporia*. The exploitation of the p/a split hinders explication of cognitive content unless we can successfully explicate the proposed philosophical machineries. Does Aristotle make any moves to clarify the relevant machineries?

a5: Actuality is mapped onto form, potentiality onto matter. Aristotle develops necessary and sufficient conditions for the cognitive transaction, hoping to exploit these new metaphysical resources.

Aristotle does work towards explicating the business of a cognizer being a potential cognizable. His explication involves a fuller account of the cognitive transaction. This fuller account is augmented by a mapping of potentiality to matter, of actuality to form. The suggestion is that the p/a split be cashed out in terms of a matter/form divide. The proposal is that the p/a split exploit what seems, *prima facie*, a more robust ontological division. This proposal must be examined.

One strain of the proposal comes when Aristotle regulates for a new definition of 'sense' (thus): "By a 'sense' is meant what has the power of receiving into itself the sensible forms of things without the matter (*dA* 424a17/18)". This regulation can be bracketed with the next putative explanation as to why

.. plants cannot perceive, in spite of their having a portion of soul in them and obviously being affected by tangible objects themselves; for undoubtedly their temperature can be lowered or raised. The explanation is that they have no mean of contrary qualities, and so no principle in them capable of taking on the forms of the sensible objects without their matter; in the case of plants the affection is an affection by form-and-matter together [*kai dia ti pote ta phuta ouk aisthanetai, echonta ti morion psuchikon kai paschonta ti hupo ton apton; kai gar psuchetai kai thermainetai; aition gar to me echein mesoteta, mede toiauten archen oian ta eide dechesthai ton aistheton, alla paschei meta tes hules*] (*dA* 424a34-b3).

Both the regulation and the putative explanation entertain a version of the thesis that a cognitive episode can best be characterized as a taking on of form without a concomitant taking on of matter. Anything which can take on the form of a candidate cognizable without taking on the matter of same can be said to have cognized said cognizable. A plant, Aristotle stipulates, cannot take on the form without the matter. A plant can take on the form of the candidate cognizable, *that* (interestingly) is acknowledged¹¹. But a plant cannot take on the form *alone*. Now, clearly,

¹¹ "A mover will always transmit a form, either a 'this' or such or so much, which, when it moves, will be the principle and cause of the motion, eg. the actual man begets man from what is potentially man [*eidōs*]

if this explanation gains philosophical traction then we can employ it to explicate the cognitive content of an episode. Which is exactly what we want. Which is exactly what the formula exploiting of the p/a split promised (and failed) to do. So the job descriptions of the two philosophical ploys are cognate. Each needs resolve the same philosophical puzzle, namely: Something more than being affected explains cognitive content. *What* more? Here is a proposed answer to the *What?* What sort of answer is it?

The bracketing of matter with potentiality, of form with actuality, makes the proposed cognitive transaction more perspicuous. I can fashion some understanding of a plant taking on the matter of a candidate perceptible. I can understand this thanks to the Aristotelian bracketing of the taking on of matter with the lowering and raising of a plant's temperature. A plant's sitting beneath a lamp and the lamp's heating the plant makes for a plausible transaction. If Aristotle wishes to stipulate that this transaction can be characterized as the plant's taking on of the lamp's *matter*, then I am not overly perturbed¹². That Aristotle exploits this perspicuous transaction by excluding such from candidate episodes of cognition is theoretically valuable because I can make something of the exclusion. I can now begin to understand why the plant could (or could not) *be* (or *not be*) a potential lamp. If Aristotle is to explain cases of an *X* not being able to be a potential *Y* in terms of the taking on of matter (and form), then I can *begin* to make something of his concept of potentiality. If *X* is affected by *Y* in such a way that *X* is affected by the matter of *Y*, then *X* cannot be said to cognize *Y*. *X* cannot be said to be a potential *Y* if *X* takes on the matter of *Y* as a result of process *Z*. Process *Z* was not a cognitive event if as a result of *Z* candidate cognizer *X* took on the matter of candidate cognizable *Y*. I can even begin a research project funded by

de aei oisetai ti to kinoun, etoi tode e toionde e tosonde, ho estai arche kai aition tes kineseos, otan kine, oion o entelecheia anthropos poiei ek tou dunamei ontos anthropou anthropon] (*Physica* 202a8-12). "This portion of doctrine creates a difficulty. If every transaction is a form transaction, then the philosopher developing a sufficient condition for cognition must be wary. Clauses must be grafted onto the antecedent of any sufficient condition which exclude certain candidates. For otherwise perception is ubiquitous. This issue will crop up again and again in our discussion. For the time being let us just note the common role of form in Aristotelian physics.

¹² I should be perturbed, of course. In what way is this a material exchange? If the plant becomes warm, then it seems as if an accidental *form* has accrued to the plant, viz. the form WARM. Matter should not really be implicated at all. In this case, however, we opt for charity. Let us give Aristotle his *form-and-matter* transaction (and see what can be done with it). There is significant discussion of this issue between Burnyeat and Nussbaum & Putnam (Nussbaum & Rorty, pps. 24/5 & pps. 28-46). Neither party, to their credit, is prepared to grant that matter *per se* is exchanged when lamps meet plants in the field.

such stipulations. I can go around making negative characterizations of certain episodes. I can measure certain transactions and pronounce as to whether these transactions were or were not *candidate* cognitive transactions. My judgements would be based on whether or not matter had changed hands, whether or not candidate cognizer *X* had received of matter from candidate cognizable *Y*. We could postulate that this would be quite a simple judgement, based on a robust measure of the respective quantities of matter in *X* and *Y* (all things being equal) before and after event *Z*. Such a research project would be theoretical viable. Provided the theoretical entities we are proposing (respectively docile material quanta, relevantly sluggish event moments) were (in their turn) robust, then such a research project would seem to be empirically viable. I would then be fully authorized to make negative characterizations with respect of putative cognitive transactions. "Matter was exchanged. No cognition ... Matter changed hands ... Event doesn't qualify," And so on (disappointing the multitudes). What I would not be authorized to do (as yet) would be to positively characterize candidate cognitive transactions. All I have thus far is the wherewithal to deny cognitive status to episodes involving the exchange of matter. If I find that the exchange of matter did not take place, then I am not authorized to declare the pertinent episode cognitive. Aristotle has stipulated that plants do not cognize. The plant beneath the lamp has no principle (*archai*) in it capable of taking on the form of the lamp without the matter of the lamp. The plant, thus, is not (cannot be) a potential lamp. Aristotle has not yet made it clear what constitutes *having such a principle*. An investigator is certainly not justified in saying that if *X* did not take on the matter of *Y* as a result of process *Z*, then process *Z* was a cognitive event (and *X* cognized *Y*). Perhaps there is more to cognizing than the *not-taking-on-of-matter*. What more?

a6: Tightening up Aristotle's sufficient condition for cognizing.

The requirements of full sufficiency have, in fact, already been sketched. We know that the *not-taking-on-of-matter* is a necessary condition for cognition. We also know that for Aristotle all transactions are form transactions. To establish a sufficient condition for cognition, therefore, we need graft the universally endorsed receiving of form on to the forbidden receiving of matter. The plant is permitted to take on the form of the lamp. If a man is to successfully *cognize* a lamp, then a man must take on the form of the lamp without taking on the matter of the lamp. With this we have established an Aristotelian sufficient condition for

a cognitive episode. The *taking-on-of-form* without the *taking-on-of-matter* marks the successful cognition. If process *Z* is one in which an agent *X* takes on the form of a candidate cognizable *Y* without taking on the matter of same, then process *Z* is a cognitive transaction. End of story.

Not quite. Can we explicate the *taking-on-of-form-without-the-taking-on-of-matter*? What is it for an agent to take on the form of a candidate cognizable without taking on the matter of same? What is it for a woman to take on the form of a Japanese songbird? Is it more straightforward for us to understand how a woman can take on the form of a Japanese songbird (without taking on Japanese-songbird matter) than it is for us to understand how a woman can *be* a potential Japanese songbird. If it were more straightforward then we would be justified in treating of this exposition of the thesis. For we must recall that it is the same thesis. To be a potential Japanese songbird *is* to cognize a Japanese songbird. To take on the form of a Japanese songbird without taking-on of Japanese-songbird matter *is* to cognize a Japanese songbird (*is* to be a Japanese songbird potentially). In order that we swap the way in which the thesis is exposed from one telling to the other we must find some value in the new telling. Is the matter/form split a less abstruse philosophical gambit than the potentiality/actuality ploy? Unclear. To gauge abstrusities is a thankless task. Nonetheless, I would submit, that with the matter/form split we have a little more to go on. Can we treat productively of Aristotle's treatment of *form-without-matter* transactions? I suggest that we can.

a7: Cross-examining Aristotelian form. How is Aristotelian form involved in cognitive transactions? Resources & problems. The touting of a resemblance relation holding between forms. Which forms? Which resemblance?

If we wish to explicate Aristotle's treatment of form without matter, then we had better attend to Aristotle's treatment of form with matter. In so treating we discover matter to be none other than potentiality, form to be none other than actuality (actuality itself being split into two 'grades' (*dichos*)). Hence the next systematic exposition of doctrine:

We are in the habit of recognizing, as one determinate kind of what is, substance, and that in several senses, (a) in the sense of matter or that which in itself is not 'a this', and (b) in the sense or form or essence, which is that precisely in virtue of which a thing is called 'a this', and thirdly (c) in the sense of that which is compounded of both

(a) and (b). Now matter is potentiality, form actuality; of the latter there are two grades related to one another as eg. knowledge to the exercise of knowledge [*legomen de genos en ti ton onton ten ousian, tantes de to men os hulen, ho kath'auto ouk esti tode ti, eteron de morphen kai eidos, kath'hen ede legetai tode ti, kai tripton to ek touton. esti d'he men hule dunamis, to d'eidos entelecheia, kai touto dichos, to men episteme, to d'hos to theorien*] (dA 412a7-12).

Form determines, in effect, what matter will be. Matter is, in effect, waiting for form to determine what it will become. When form determines what matter will be, then we have a compound. What is an example of a compound? Perchance one of the natural bodies (*ta somata*: dA 412a14). Rocks, dogs, rosebushes, teacups, songbirds, butterscotch puddings. These are all candidates for substancehood. These are all members of the class *ta somata*. These are all composites of matter and form, potentiality and actuality. A rock is matter determined by form. A rosebush likewise. Likewise teacup, songbird, Aberdeen terrier. When I come across a butterscotch pudding I come across a composite of matter and form. *How* do I come across same? How do I come across same if I am to meet this butterscotch pudding *cognitively*? Well, this is something we have established. If I am to cognize the butterscotch pudding, then I must receive of the form of the butterscotch pudding without receiving of the matter of the butterscotch pudding. My taking in of butterscotch-pudding form without my taking in of butterscotch-pudding matter is my being a potential butterscotch pudding. It appears that I need to meet of the composite in such a way that I split the composite taking the actuality-half. Is this feasible? Is it at all coherent to claim that to cognize the composite (the butterscotch pudding: matter determined by form) I must meet half the composite, *viz.* the form? Can such a meeting be staged (in order that we explicate cognitive content)? I *do* make claims (intermittent claims) funded by putative cognitive meetings with butterscotch puddings (dogs, chairs, teetotallers, weathercocks). It appears that I am making strange claims relating to the extraction of form from the composite. It appears that it is this extraction that constitutes my cognitive awareness of the composite. This extraction appears to be quite routine. Is the routine extraction explicable? How do I extract the form of the pudding from the pudding? Aporia beckons. Hungry for tactics we go to the experts on tactics.

Myles Burnyeat offers one solution to aporia. Myles Burnyeat suggests that we can exploit a resemblance relation in order to explicate the Aristotelian notion of the *taking-of-form-without-the-concomitant-taking-of-matter*. Here is the suggestion:

... if receiving form with matter is absorbing some matter carrying a certain form, receiving form without matter would be absorbing the form without its being carried by a material vehicle. But form is not the sort of thing that can flit from here to there, with or without a material vehicle, and be absorbed. Receiving the form of something without its matter just means becoming like it in form. So, receiving the form of something without its matter means becoming like it in form but not becoming like it in matter. Hence also receiving the form of something with its matter means becoming like it in both form and matter. Aquinas gives an excellent account of this: when a kettle or a plant gets warmed by the fire, its matter comes to be disposed in a certain way, the same way as the fire already is. That is what makes this a case of real change; the matter of the thing is assimilated to - becomes like - the matter of the agent, and that is how it acquires the same form and that is the sense in which it is affected by the agent's matter as well (Nussbaum & Rorty, p.24).

Burnyeat urges that we not read the *taking-on-of-form-without-the-taking-on-of-matter* at face value. If we do read this doctrine at face value then, he claims, the doctrine is incoherent. Form comes hand in hand with matter. Form cannot be extracted from matter (and then go on to be *absorbed* by the cognizer). Hence the embracing of the resemblance relation. The notion of the cognizer resembling the cognizable (and that resemblance then accounting for cognitive content) is a more fugitive notion than that of a cognizer *absorbing* (*per impossibile*) form *sans* matter. The notion of absorbance asks for a physiological (material-organic) treatment; we visualize a sponge and picture abstersion. To absorb an ineffable item (say, a form) is to perform a category error¹³. Hence Burnyeat's exploitation of the image. We cannot so absorb a form. A form cannot be so absorbed. To resemble such an item as a form, however, seems, *prima facie*, more plausible. Why does such a relation seem more plausible? Perhaps because we understand a form to be a hazy sort of entity and that we attribute to the notion of resemblance a certain plasticity. Perhaps because we would agree that one could *resemble* something without really having to stand to it in any sort of strict correspondence. Thus we can vaguely resemble an inherently vague world item. If this is the reason why the resemblance notion wins respectability, then its adoption as a philosophical resource is contraindicated. We wish that the proposed relation between candidate cognizer and candidate cognizable uniquely and perspicuously account for the special cognitive

¹³ Better: for a philosopher to *expect* that a cognizer absorb an ineffable item (say, a form) is to perform a category error.

connection that obtains if and when a cognition occurs. We wish that this relation discriminate perchance between men and rocks, dogs and eucalypts, omnibuses *qua* candidate cognizers. A vague relation vaguely postulated is seditious, it punctures doctrine's limpid explication. The resemblance relation needs to be properly explicated. Burnyeat is asking that the resemblance relation hold with respect of form and fail to hold with respect of matter. The relation (thus) must be doubly explicated. Why does it hold where it is said to hold? Why does it not hold where it is contraindicated by doctrine? Burnyeat promises to explain. He hopes to exploit an example bequeathed him by Saint Thomas. An example? It is next given.

Burnyeat allows Aquinas to set up a generic non-cognitive episode by proxy. The example is simple, pungent; the setting humdrum. We are to picture a fire warming a kettle. We are to picture the following scene (as given above): "When a kettle ... gets warmed by a fire, its matter comes to be disposed in a certain way, the same way as the fire already is." The critical part of the demonstration is contained in the proposed *result* of the warming process. The matter of the kettle supposedly comes to be disposed in the same way as the fire (already) is. The resemblance relation is purported to hold and secure this sameness of material disposition. This is misguided.

The resemblance relation does not here hold. The matter of the kettle does not come to be disposed in the same way as the matter of the fire. If the matter of the kettle were to become disposed in the same way as the fire then the kettle would become the fire. The kettle and the fire are (for argument's sake) candidate substances. The kettle is matter determined to be a 'this' thanks to a form. The kettle is a composite: matter thus determined (thus enformed). Likewise (for argument's sake) the fire. The form of the kettle cannot be exemplified by the matter plus the form of the fire. Neither can the form of the fire become exemplified by the matter plus the form of the kettle. The kettle does admit of a change in the category of quality, granted. The kettle becomes hotter. The fire has warmed the kettle. But we cannot hope to exploit a resemblance relation with respect of this change. The change is not a change *to* the composite fire. The change is a change to a first substance, *viz.* 'this kettle'. Perhaps we can make something of the notion of resemblant dispositions if we treat of average kinetic velocity of molecules in (respectively) fire and kettle. Perhaps we can say that these molecules achieve (in their turn) a mean (parity), those of fire to those of kettle. But this is not an Aristotelian story. Aristotelian composites do not reduce to molecular samples. The only way for the matter of the kettle to become disposed in the same way as the matter of the fire is in the style of a complete (*formal*)

transmogrification. Which would be impressive. Because impossible. Because such a transmogrification would implicate form (*vor allem*). Because fires do not become kettles. And this is what would have to take place (in order that a resemblance be properly instantiated). I suggest that we refrain from telling the kettle/fire story with a resemblance twist. I suggest that we note that Burnyeat's employment of Aquinas' example is unhelpful. I suggest that we stick to Burnyeat's initial proposal, namely that a resemblance relation hold between cognizer and cognizable with respect of form. To repeat: "Receiving the form of something just means becoming like it in form. So, receiving the form of something without its matter means becoming like it in form but not becoming like it in matter". This proposal, I believe, has legs. These legs will now be scrutinized.

a8: Further investigating form, resemblance. Metaphysical resources sought, doubletested. Demonstration of form, as it were, in action. The physician case-study.

How does a candidate cognizer become like a candidate cognizeable in form? How does a candidate cognizer become like a candidate cognizeable in form whilst being careful not to become like a candidate cognizeable in matter? How does a woman come to form-resemble a Japanese songbird? How do I come to form-resemble without matter-resembling a supermarket? What thwarts matter-resemblance in this case? Is it form? Which form? Supermarket form or human being form? Hopefully the last. The exact manner of the transaction is not clear. A kettle would seem to have more chance of becoming a fire than of my coming to form-resemble a supermarket. According to doctrine I would thus be deprived cognitive experience of supermarkets. The metaphysical conceit of form-resemblance borders on the arcane. Can we make anything of the conceit? I would suggest that this depends on what we can make of the notion of Aristotelian form. When we have a more hardheaded grasp of Aristotelian form then perchance we will better be able to scrutinize form transactions and putative resemblance relations holding between agent-substance and patient-substance *qua* form. This is optimistic (given results thus far). Nonetheless, I submit, until we have something more concrete to work with we will suffer aporia. Routine suffering is contraindicated. We require the assistance of either physician or metaphysician. The Stagirite provides us with an example of the work of the former in a work paronymously named after the work of the latter. We are grateful.

The relevant example of the physician's art (*techne*) comes in the *Metaphysics*. The example purports to demonstrate form in action. The metaphysical resource of form is elaborated upon and the philosophical status of the notion is developed (thus):

... from art proceed the things of which the form is in the soul of the artist. (By form I mean the essence of each thing and its primary substance.) For even contraries have in a sense the same form; for the substance of a privation is the opposite substance, eg. health is the substance of disease (for disease is the absence of health); and health is the formula in the soul or the knowledge of it. The healthy subject is produced as a result of the following train of thought: - since *this* is health, if the subject is to be healthy *this* must first be present, eg. a uniform state of the body, and if this is present, there must be heat; and the physician goes on thinking thus until he reduces the matter to a final something which he himself can produce [*apo technes de gignetai hoson to eidos en te psuche (eidos de lego to ti en einai ekastou kai ten proten ousian); kai gar ton enantion tropon tina to auto eidos; tew gar stereoseos ousia he ousia he antikeimeno, oion hugieia nosou, ekeines gar apousia he nosos, he de hugieia ho en te psuche logos kai he episteme. gignetai de to hugies noesantos outos; epeide todi hugieia, anagke ei hugies estai todi huparxai, oion homaloteta, ei de touto, thermoteta; kai outws aei noei, eos an agage eis touto o autos dunatai eschaton poiein*] (*Met.Z* 1032a32-b9)

The ground of the physician's reasoning process is the form of health. It is proposed that the physician has this form in his soul. To be a physician is to have the form of health in the soul. This notion of *having-the-form-in-the-soul* does not need to be thought of as an occult possession. To have the form of health in the soul can be read off as having knowledge (*episteme*) of health. One would be reluctant to visit a medical practitioner who did not tout paraphernalia cognate with such knowledge, the knowledge of what features properly characterize good health, and what features properly characterize disease. The physician's being a physician enables him to instigate a practical syllogism. State *O* is the state I know as being healthy. In order that I get you, my patient, into this state I need to generate the circumstance *t, q, f*. Act *X* can generate the circumstances *t, q, f*. As physician I conclude that act *X* is indicated. I perform act *X* in order that I get you, my patient, into state *O*. My knowing that *t, q, and f* are the best circumstances to generate in order that you get into state *O* is thanks to my drawing on the form of health in my soul. My knowing what health is enables me to make inferences that get you, my patient, into state *O*. My knowing what health is is my knowing that health is properly characterized as a patient *being in* state *O*. This knowledge and the inferences funded by this knowledge is my possession of the form of

health. This seems to make sense. Aristotle's conclusion to this exposition is modest. He claims no more than that "it follows that in a sense health comes from health .. [*hoste sumbainei tropon tina ten hugieian hex hugieias gignesthai*] (Met.Z 1032b11)". Can we make any use of this *coming-to-be-from*? Perhaps we can.

Perhaps we can feed the *coming-to-be-from* (somewhere) into the proposed cognitive transaction. Feed it in where (into what)? Unclear. Perhaps we can follow a hunch that puts the form of the candidate Japanese songbird into the soul of a putative cognizer and ask that Japanese-songbird cognitive content is philosophically funded by a *coming-to-be-from*. But this is madness! Granted, it seems to map a gratuitously idealist vector from *psuche* to cognizeable. And this is controversial. Because unaristotelian? Indeed. For the vector to be Aristotelian the *coming-to-be-from* would have to originate somewhere amongst world furnitures (rocks, tables, songbirds) and terminate in *psuche*¹⁴. Therefore we do not want an account that asks that a candidate cognizeable *be* an item in the soul of the cognizer. We counterpropose that the vector employed to track the cognitive transaction terminate in *psuche*. This is problematic. Termination implies extinction of activity. This is irresponsible. Aristotelian cognition is clearly active, active in the sense that the cognitive transaction benefits the living organism, helps keep it alert and alive. It is therefore judicious to stipulate no more than the next. Cognition succeeds when a cognizer cognizes an independently existing external substance (or a quality attaching to same). This transitivity captures the best of the empirical slant. Aristotelian cognition *originates* in the world of substance. It is reckless to regulate that it terminates in soul. All we need to say is that it begins when a substance meets another substance and is constituted by the special nature of that meeting. The meeting involves a transaction of form. The suggestion is that the transaction of form is such that post transaction the patient (the cognizer) form-resembles the agent (the cognizeable). The elaboration of this suggestion hopes to exploit the physician case-study to show how one

¹⁴ Much speaks against such a vector's originating in *psuche*: "... perception starts from particular things (dA 408b15)." "... there is no actual thing which has separate existence, apart from, it seems, magnitudes which are objects of perception .. (dA 432a3/4)." "... the perceptible seems to be prior to perception. For the destruction of the perceptible carries perception to destruction, but perception does not carry the perceptible to destruction. For perceptions are to do with body and in body, and if the perceptible is destroyed, body too is destroyed; hence the perceptible carries perception to destruction. But perception does not carry the perceptible. For if animal is destroyed perception is destroyed, but there will be something perceptible, such as body, hot, sweet, bitter, and all other perceptibles (Cat. 7b35-8a7)." Three exhibits testifying to Aristotle's fairly robust empiricism. Perceptibles are either independently existing material objects or qualities which contingently accrue to same. Perceptibles are not soul-dependent ineffable furnitures.

substance can form-resemble another (without co-exemplifying that form¹⁵). Has this hope born fruit? Can we exploit the notion of a causal chain being implicated when a physician's possession of the form of health leads to the exemplification of the form of health in the freshly cured and convalesced patient? Unclear. The notion still needs work. The business of form-resemblance here is not perspicuous. Is the form of health really transferred from the soul of the physician to the substance-patient? Is it a causal chain that is being touted here? What sort of form transfer is being proposed? It might pay to try and map the proposal.

I think that the general features of the healing process are clear enough. A physician practises his art and heals his patient. The form of health is implicated in that for us to say that the physician knows what he is doing when he practises his art and heals his patient is to say that he has the form of health in his soul. We can set up the example afresh to highlight the position of the physician a propos the form of health.

The physician knows what health is in that he can recognize signs *l*, *w*, *d* as they inhere in the healthy patient. Because he knows that signs *l*, *w* and *d* indicate health the physician can infer that the absence of these signs indicates disease. Because he knows that a healthy patient exhibits signs *l*, *w*, and *d* he knows that *l*, *w*, and *d* must accrue to the diseased patient if the diseased patient is to become healthy (and thus exemplify the form of health). The important feature of the doctor's *techne* (with respect to our explicanda) is that he knows how to get *l*, *w*, and *d* to accrue to the diseased patient. In exercising this part of his knowledge of the form of health he actively *causes* the form to be freshly exemplified in the cured and convalesced patient. We can read this pungently: the form of health in the physician's soul is now also in the patient (thanks to the physician's exercising of his knowledge of health). Now this pungent mapping of form-transfer is both fair and mischievous. Mischief wins priority of treatment.

a9: Problems with form-transfer in the clinical case-study. To form-resemble X Y must obey fairly strict metaphysical guidelines.

Once the healing has taken place and the patient is fit and well and the patient is only homonymously a patient in that he now exemplifies the

¹⁵ Which co-exemplification would necessitate complete transmogrification, a transmogrification mooted when kettle was asked to become fire, fire kettle.

form of health the patient resembles the physician (assuming the physician himself is fit and well) in that both patient and physician exhibit signs *l*, *w* and *d*. The problem is that it is not the physician *qua* physician who exemplifies the form of health to thus resemble the fit and well patient. Aristotle is aware of this discrepancy. Consider the next:

... a man who is a doctor might himself be a cause of health to himself. Nevertheless it is not in so far as he is a patient that he possesses the art of medicine: it merely has happened that the same man is doctor and patient .. [*hoti genoit'an autos auto tis aitios hugieias on iatros.; alla'homos ou katho hugiazetai ten iatriken echei, alla sumbebeken ton auton iatron einai kai hugiazomenon*] (*Phys.* 192b24-27).

Now, in Aristotle's example the patient is the doctor and the doctor the patient. The doctor has cured himself. The doctor *qua* patient freshly exemplifies the form of health once he is cured (but not as the form of health which we are wont to cash out as *the art of medicine*). The point is apposite. Our case-study exhibits the same semantic strain being put of the form of health.

Truly, physician *qua* physician exercises his *techne*, exploits his knowledge of health, instigates a practical (aetiological) syllogism. Physician *qua* physician does not exemplify the form of health in the same way as the freshly cured and convalesced patient exemplifies the form of health. The physician (if he himself is fit and well) exemplifies *this* form of health as patient. If the physician exercises his knowledge of health (as he does in Aristotle's example) to ensure that signs *l*, *w*, and *d* accrue to his own person, then we could say that the physician *qua* patient exemplifies the form of health in the same way as any of the physician's freshly cured and convalesced patients. The class *F* of freshly cured and convalesced patients would now include as a member the physician. The members of *F* would all exemplify the form of health. But none of the members of *F* would exemplify this form as a 'grade' (*dichos*) of knowledge (actuality). The physician *qua* physician would not be a member of *F*. The upshot of this non-membership is that the form of health that the physician draws upon in exercising his *techne* is non-identical to the form of health as exemplified by the members of *F*¹⁶. Which non-identity is of benefit to

¹⁶ Or, alternatively, the manner in which the members of *F* express the form of health is non-identical to the manner in which the physician *qua* physician expresses the form of health. This business of variously expressing a form will crop up again when we come to Aquinas. Let us concentrate on the quest for a pungent hypostasis of form. Manners and modes of expression deserve scholastic accompaniment. Aristotelian hypostasis is subtle enough to get us to impasse. Just how a varying expression of form

theory. And of cost. Of benefit because it provides an escape clause to certain pathological cases. Of cost because we generate a diffuse and confusing account of the form of *X* being the form of *X*. The benefits first up.

If the form of health as exemplified by a freshly cured and convalesced patient were identical to the form of health possessed by physician *qua* physician, then we would be forced to swallow the following conclusions:

1, All healthy individuals are doctors;

2, No doctor can get sick;

3, Only the sick can enter medical school and only the fit and well can graduate from same;

4, To graduate from medical school (to have the form of health accrue to one's soul as an item guaranteeing the relevant *techne*) is the same as recovering from an illness;

5, On recovering from an illness a man should receive of licence to practise medicine;

6, The exhortation "Physician, heal thyself!" is a nonsense because:

6a, No doctor can simultaneously be a patient, no patient a doctor:

6b, As soon as a doctor's health deteriorates he is no longer qualified to treat anybody (including himself):

differs (theoretically) from a putative hypostasis of form will provoke discussion. It is not clear that they branch off from paraphrase. If we endorse the form HEALTH being in the soul in various ways, some will promote blatantly medical behaviours (dressing wounds, amputating limbs, administering shock treatments), some promote more subtle activities (making inferences, tracking prognoses, thinking out appropriate courses of remedy). Are we then to say, hypostatically, that these are caused by the same form of health? If so then HEALTH becomes fairly liquid (and perhaps reveals itself as non-hypostatic).

6c, As soon as a patient regains health (subsequent to treatment being delivered by a second surgeon) he reclaims the qualification the treat others (but no longer requires it to attend to his own malaise - which malaise is forbidden anyway).

It is nice to have escape clauses to these pathological cases. The forms of health *in* (respectively) physician *qua* physician and patient *qua* patient are non-identical. Non-identical? Correct. Then they are not the same *form* of health. Correct. The identity vulnerable to pathology is not endorsed. Then there must be costs to theory of this *not-endorsing*? There are.

The cost of the non-identity of the respective forms of health is that we now need to account for the waxing of what we thought was a stable form, *viz.* HEALTH. HEALTH appears to have generated isotopes. How can we say that the physician *has* the form of health if he does not have *the* form of health (because there isn't *one*)? How can we say that the form of health which shows itself in the physician's exercising of his *techne* is involved in a causal chain which leads to the exemplification of the form of health in the freshly cured and convalesced patient if the first form is non-identical to the second. Does not the causal chain *depend* on such an identity, form to form? This is tricky. Clearly, we cannot hold out for an identity relation. It has been demonstrated that the identity relation generates pathology. Yet the whole point of Aristotle employing the form of health conceit is to propose that in some sense HEALTH comes from HEALTH. We are tempted to tout the *coming-from* relation as causal. The physician causes the patient to exemplify HEALTH thanks to his having HEALTH in his soul. But we cannot hold on to this implication. Form cannot be implicated in this way if we run with the identity relation. Can we then persist with the claim that HEALTH in some sense *causes* HEALTH. Unclear. If we are to exploit *form* in an account of a causal connection, then we must plump for a relation other than identity to hold between form's respective exemplifications. Can we suggest that another relation obtain between physician *qua* physician and homonymous patient? How about resemblance? Could we tout resemblance as replacement relation for identity? It is a possibility.

a10: Investigating a resemblance relation's holding between rival exemplifications of form. Asking for more perspicuous metaphysical treatments of form qua form. Waxing recondite.

What would it be for us to propose that the form of health in the physician *qua* physician resemble the form of health in the fit and well patient? Can we expect that the physician *qua* physician's HEALTH form-resemble the patient's HEALTH but avoid being identical to it? If so, then can we expect that this form-resemblance explicate HEALTH *coming-to-be-from* HEALTH? This is immensely problematic.

Let us kick-off with a modest query. Can a form *X* be said to be non-identical but resemblant to a form *Y*? This seems plausible. Plausible in the sense that *X* is like *Y* in that it is a form. If *X* and *Y* are both forms, then they are alike to that extent. Even if we have no idea what forms are, we can propose that a form's being a form is similar. But surely this is too hesitant! Why don't we superpropose that one form's being a form is identical to another form's being a form? We might even superpropose that such *identity* is advantageous to ontological stability. Do we really want to risk saying that forms can *be* forms in different ways? Do we really want to risk saying that *X* is a form after mode *P* and *Y* is a form after mode *Q* and that *P* resembles *Q* but is non-identical to it? Unclear. I suggest that it would be theoretically antiseptic to conduct an examination of generic Aristotelian form before we delve into such abstract zones. What is a form? What is it to be a form? Where do we start such a cleansing operation? We start where we left off. We restart in the *Metaphysics*.

The most perspicuous treatments of form in the *Metaphysics* are those that treat of the composite, form and matter. (That Aristotle should best treat of form in the composite should be noted.) What is a composite? A decent example of a composite is the brazen sphere. The brazen sphere is a composite of form and matter. The sculptor, in making the brazen sphere, does not make the form, neither does he make the matter. The matter and the form already exist (*Met.Z* 1034b12). No, the sculptor makes the composite. The analysis of the making of the composite is critical to an understanding of the form component. We are conveniently provided with such an analysis (next):

Since anything which is produced is produced by something (and this I call the starting-point of the production), and from something (and let this be taken to be not the privation but the matter..), and since something is produced (and this is a sphere or a circle or whatever else it may chance to be), just as we do not make the substratum (the brass), so we do not make the sphere, except incidentally, because the brazen sphere is a sphere and we make the former. For to make a 'this' is to make a 'this' out of the substratum in the full sense of the word [*Epei de hupo tinos te gignetai to gignomenon (touto de lego hothen he arche tes geneseos esti) kai ek tinos (esto de me he steresis touto all'he hule ..) kai ti gignetai (touto d'estin e sphaira e*

kuklos e ho ti etuche ton allon), hosper uode to hupokeimenon poiei, ton chalkon, outos oude ten sphairan, ei me kata sumbekos oti he chalke sphaira sphaira estin ekeinen de poiei. to gar tode ti poiein ek tou holos hupokeimenou tode ti poiein estin] (I mean that to make the brass round is not to make the round or the sphere, but something else, ie. to produce this form in something different from itself. For if we make the form, we must make it out of something else .. eg. we make a brazen sphere; and that in the sense that out of a 'this', which is brass, we make this other, which is a sphere.) .. there is a *brazen sphere*, this we make. For we make it out of brass and the sphere; we bring the form into this particular matter, and the result is a brazen sphere. [*.. to de chalken sphairan einai poiei; poiei gar ek chalkou kai sphairas; eis todi gar to eidos poiei, kai esti touto sphaira chalke*] (*Met.Z* 1033a23-b10).

The form is the sphere, the matter is the brass, and the sculptor makes the composite of the form and the matter, and the composite of the sphere and the brass is, lo and behold, the brazen sphere. The sculptor makes the brazen sphere. The sculptor makes the sphere only in so far as the sculptor makes the *brazen sphere*. And the brazen sphere can be taken as an exemplar of the form. And the form is not the form of the brazen sphere, rather the form is the form of the sphere. The exemplar of the form is (in this case) brazen. The treatment is quite limpid and gives us a good deal to go on. If we want to understand Aristotle's notion of what a form *is*, then this treatment is worth taking seriously.

Now, a host of queries can be thrown at the analysis of the making of the brazen sphere. Is form always to be understood as a component of the composite? Can the sphere exist apart from the brazen sphere? What *is* the form *a*, in the brazen sphere, and *b*, apart from the brazen (or the *X-en*) sphere? Is there form *of* the matter, a form, say, *of* the brass. How can we best describe the form component of the composite? Is the form component of the composite cognizeable? How can we be sure that the form component of the composite is *best* exemplified in that composite?

A couple of these queries are more immediately relevant to our inquiry. If I want to understand what an Aristotelian form *is* then it seems prudent to take a pungent example of an Aristotelian form and examine it carefully. The form component of the brazen sphere is a good candidate for pungency. What *is* the form of the brazen sphere? What is the form of the brazen sphere *like*? What is the form of the brazen sphere like when the form component is in the brazen sphere? I don't know that queries like these invite anything but dark replies. Perhaps we can kick off the investigation of form *qua* form with a workmanlike appeal to pragma. Can we productively ask of the form of the brazen sphere what it *does* when it is in the sphere? If we can muster a response to this hardheaded query, then perhaps we can ask whether knowing what the form component in

the composite does helps us understand what the form component of the composite *is*. Neither provocation, I submit, seems outrageously implausible. Let us (then) anticipate something of philosophical value in reply.

Question (again): What does the form component of the brazen sphere do in (and to) the brazen sphere?

Straightforward. The form of the sphere makes sure the composite is spherical. The form component *determines* the shape of the matter component. Better: the form component *determines the matter component*. The brass, it seems plain, could go into a variety of shapes. The form of the sphere determines that the brass go into spherical shape. Can we propose a blunter variety of determination? No, shape seems more than satisfactory. Given this result, can we then *liken* a form to a shape? Well, in this case we can. Can we propose that a form be understood as a shape? Can we propose (first) a variety of shapes; then ask that these shapes be taken as forms? With the sculpting process in mind - yes, this is feasible.

If I propose that a cube is a form and I then sculpt the brass in the shape of a cube, then it seems legitimate to take the cube to be the form component of the brazen cube. Likewise with a torus. Likewise a cylinder, a dome, an ellipsoid, likewise a Moebius strip. There will be (no great surprise) a host of paronymous shapes: toggles, buttons, knobs, warts, teats, toadstools, *to simon* (the snub). Some wag will, no doubt, bruit the brass monkey. In so doing, however, he will be drawing on a shape (funded by an exemplification of a form) that *cannot* (primarily) be thought of as a shape. He will be drawing on the shape of a monkey. The form of a monkey is not a shape. And yet the form of the brass monkey can be thought of as a shape. Likewise with other paronymous shapes. This discrepancy is worth noting. The form of the monkey, unlike the form of the brass monkey, cannot be thought of as a shape. I propose that we return to this discrepancy shortly. I propose that in the meantime we acknowledge that we have fashioned a form machine. I plug the form machine in and generate forms. These forms go on to determine the brass (the silver, the gold, the wood). The form machine spits out forms that can all be thought of primarily as shapes. They are without number: polygons, Cassinian ovals, the naevus, the cone, the snub. Now, this arrangement does seem plausible for sculptures (sculptings). But what about putative forms such as the form of health? Can I think of the form of health as a shape? No.

To think of the form HEALTH as a shape speaks of incompetence and theoretical palsy. The form machine doesn't spit out forms such as the form of health. This is a great pity. Automation was estimated to be of advantage to the research project. I need a back-up notion of form. If I

want to understand what Aristotelian forms *are*, then I need adequate philosophical equipment. The form machine is obsolete. Perhaps I can no longer think of even the form of the brazen sphere as a shape. If so then we are back to where we started. How can I think of a form's existing? Perchance a treatment of form in relation to the paronymous shapes (the warts and the toadstools) will lessen bewilderment. If so then such treatment is urged.

We noted a discrepancy. We noted that the paronymous forms - the brazen monkey, say, the golden button, the *X-en* teat - could usefully be thought of (in their respective exemplifications) as shapes. But the form of the monkey and the form of the button and the form of the teat (in their *natural* exemplifications) could not be so thought. Monkeys, buttons and teats are more than figures, outlines traced in contingent matters. We have a genuine discrepancy. Why can I think of the form of the brazen monkey as a shape and not think of the flesh and blood monkey as a shape?

I proffer that this discrepancy can be explicated by studying the respective *makings*, of brazen monkey, of flesh and blood monkey. What happens (first up) when the brazen monkey is made? Well, the scene is much the same as that implicating the sphere and the brass. The sculptor determines that the brass will be a 'this'. The sculptor shapes the brass in the shape of the monkey. The form of the monkey is not exemplified in the brazen monkey, rather the artist's conception of monkey shape. Can we say, then, that in this case of *making* the form of the brazen monkey transfers from the artist's soul to the freshly determined brass, to the composite? Unclear. We can be sure, however, that the monkey itself was not directly implicated in the process. The sculptor determines the form of the brass. That he chooses monkey shape is contingent. Does the contingency of the sculptor's choice explicate the discrepancy between being able to say that the form of the brazen monkey is a shape and not be able to say likewise with the flesh and blood monkey? Well, the sculptor seems to be involved in the generation of the paronymous monkey form, involved in a way in which he was not when we considered the determining of the brazen sphere. Howso? Well, the sculptor seems to have borrowed, as it were, the figure of a generic monkey and lent it to the brass. And in the case of the sphere? In that case the sphere seems to have no proper home, not in the brass and not in the natural world. Are we suggesting that the sphere did not exist prior to the sculptor's conception? We cannot suggest this. The form already exists (*Met.Z* 1034b12). Mathematical forms, the forms of *ta somata*, even the forms of the paronymous objects: *these already exist*. In which case the sculptor cannot generate *ex nihilo* a form. In which case our discrepancy of characterization remains unresolved. We cannot permit of the sculptor

generating spherical form and not generating (*borrowing*) paronymous (monkey) form. An alternative account is urged.

Can we point at the form of the monkey and propose that the shape component of the form of the monkey is available to fund future paronymous forms, splitting away when needed from parent mother (monkey) form? Such pointing is blind and captious. I suggest that we earmark this apparently pathological case-study. Let us note that a discrepancy of characterization may arise whenever we tell of a paronymous form's being implicated in artistic conception. The discrepancy cannot be explicated by appealing to special selective powers of the artist. We will have opportunity to return to these non-results. Let us return to other problems with forms and shapes.

The form component of the brazen sphere is a sphere and it is tempting to think of the sphere as a shape. The form of the sphere *qua* form, however, cannot be thought of as a shape. Why not? Because it is now clear that there are Aristotelian forms (HEALTH, MONKEY) which cannot be thought of as shapes. Given that some forms cannot be thought of as shapes we ought to refrain from thinking of other forms as shapes. If we do not so refrain, then we are in danger of creating two classes of Aristotelian forms, *viz.* class *K* and class *P*. Class *K* contains as members those Aristotelian forms which can be thought of as shapes. Class *P* contains as members those Aristotelian forms which *cannot* be thought of as shapes. We do not want such a division of forms. We do not want BRAZEN SPHERE to sit in class *K*, beyond the pale of HEALTH and MONKEY sitting in class *P*. We urge treating of forms *qua* form as being forms in the same way. We urge that BRAZEN SPHERE be a form in exactly the same way as HEALTH is a form, MONKEY is a form¹⁷. Homogeneity of being is estimated to be of advantage both heuristically and ontologically. I propose, therefore, that we liquidate class *K*. The former members of freshly liquidated class *K* now belong to class *P*. No Aristotelian form can now be thought of as *being a shape*. This is a result

¹⁷ Has doctrine not prohibited speaking of the form of the brazen sphere? SPHERE is the form. The brazen sphere is the composite. Is this not doctrine? Maybe. There is some room for movement on this point. The brass is not prime matter. When the sculptor chooses to work with brass he chooses a world item already enformed. He makes the enformed brass take on a new shape. The sculptor makes the composite, this we have observed. But can we not talk of the BRAZEN SPHERE with the business of the sculptor *choosing* brass as his material in mind? The sculptor doesn't make the brass, but it is his artistic choice that makes the sphere a *brazen* sphere. Equally, it is the sculptor's artistic choice that makes the brass *spherical*. The *contribution* of the artist *qua* form-expressing substance will become critical to our project. Which form(s) the composite sculpture exemplify depend to some extent on him (no one argues against this). What those forms *are* is not always clear cut. BRAZEN SPHERE? WHITE HORSE? HOT KETTLE (affected by fire)? We ask for leeway on this doctrinal point. The leeway could prove productive.

of sort(al)s.

a11: Appeasing lingering intuitions that BRAZEN SPHERE can be thought of as a shape. Revisiting the form of health case-study having tabled certain theoretical guidelines. How can we best characterize HEALTH?

In spite of astringent theoretical stipulation we still have the feeling that some Aristotelian forms can usefully be thought of as shapes. It seems that the only reasonable way to stop thinking of the form of, say, the sphere as a shape is to separate what it is to be the form of the sphere from what it is that the form SPHERE *in* the brazen sphere does, *viz.* secures a certain exemplification. SPHERE in the brazen sphere secures spherical exemplification. SPHERE in the brazen sphere determines sphericity. The sculptor, opting for the form of the sphere has determined that the brass (it is not yet *this* brass) will adopt a spherical shape. But we must recognize that the form component (SPHERE) of the brazen sphere is not itself a shape. SPHERE does not exemplify anything¹⁸. When SPHERE juxtaposes with the composite (brazen sphere), *then* it determines what the brass will exemplify. This analysis yields the next result: What it is for the form of the sphere to be a form is not what it is for the brazen sphere to be a sphere. Yes, these are dark sayings. They cannot be tested under local conditions¹⁹. I plead that the distinction be (provisionally) taken to hold. The distinction is not immune from revision. But for the time being we will treat of the form component of the brazen sphere differently than we will treat of the shape of the brazen sphere. Form *qua* form, we submit, deserves homogenous treatment. We propose that SPHERE, HEALTH, MONKEY and TOADSTOOL receive homogenous treatment. Were a definition to accrue to SPHERE in terms of *what-it-is-to-be-a-form*, then we will insist that *that* definition accrue to HEALTH, MONKEY and TOADSTOOL. If it did not so accrue then we would argue that it was not a final definition. OK, we have tabled these heuristic stipulations. Are we

¹⁸ Ruling out a form's self-exemplifying is urged when treating of *Platonic* forms. HORSE should not be asked to be a horse as this is said to lead to notorious pathology. But what of an Aristotelian form's self-exemplifying? Would such lead to pathology? Would such serve any useful ontological purpose? Unclear. The ploy of asking that the form of *X* be an *X* will, as it happens, be met later in the piece. The *usefulness* of such formal identity will be subjected to a rigorous critique. Perhaps the results will surprise.

¹⁹ They can, however, be put in the context of a discussion of Platonic forms. Aristotle, above all, wants to ensure that his forms are not things. *Not* substances. *Not* independent subsistents.

any better off having tabled?

Yes and no. We have stipulated that forms *qua* form deserve of identical definition. This stipulation has saved us multiple categorizations of form. We have blackboxed a proposed difference in the ontological status of a form and its local exemplification(s). We can now, I submit, consider the Burnyeatsian notion that forms be understood to draw a resemblance relation under certain conditions. Which conditions? This is straightforward. The conditions that interest us are those relevant to the form of health being exemplified in *a*, physician *qua* physician and *b*, freshly cured and convalesced patient. A resemblance relation is purported to hold between the respective HEALTHs. We will take a breath. Thus. And consider this proposed resemblance.

It has already been acknowledged that we cannot propose that an identity relation hold between HEALTH in physician *qua* physician and HEALTH in patient. We avoided pathology thus. And now fall back on a resemblance relation. If we can find that a resemblance relation holds here, then perhaps we can apply this result to a candidate *cognition* case-study. Burnyeat's suggestion was that cognizer come to form-resemble cognizeable; that this *coming-to-form-resemble* process constitute a successful cognition. To get such a process to work, however, we have to get the business of form-resemblance to work. Can the physician-patient case-study illuminate the working? This is the hope.

Where do we begin? We begin with the form of health in the soul of the physician *qua* physician. This form of health is non-identical to the form of health as exemplified by the patient (any patient *qua* patient). Now, what *is* the form of health in the physician's soul? How does HEALTH exist there? How can we best characterize it *qua* form?

We have already noted that Aristotle encourages us to cash out the possession of the form of health in the soul in terms of knowing what health is and drawing on that knowledge to fund various noso-aetiological behaviours. Knowing what health is involves being able to recognize certain signs exhibited by the diseased patient - we mooted signs *l*, *w*, and *d*. Having the form of health in the soul *was* being able to recognize signs *l*, *w*, and *d*; being able to recognize their absence in the diseased patient; being able to instigate a practical syllogism and get signs *l*, *w*, and *d* to accrue to the patient. Encouraged to cash out HEALTH in this mood it seems as if we are encouraged to develop a *functional* definition of the form. But this is misleading. We can develop a functional definition of what it is to *have* the form of health in the soul. Yes, such is rightly authorized. But we are not rightly authorized to develop a functional definition of what it is to *be* a form of health (in the physician's soul or no). Well, are the two definienda different? It seems prudent to suppose

that they are. Until we have evidence to the contrary we will suppose that what it is to be a form of health in the soul is not what it is to have a form of health in the soul. We understand something of the last. We grasp very little of the first. What is it to be a form of health in the soul? What is it for the form of health to be a form? What is it for the form of *X* to be the form of *X*? What is it to be a form *tout court*? The *structure* of these questions helps glean response from Aristotle.

a12: Throwing "What is it?" questions at form. Cross-examination & aporia. Taking forms as simples. Implications of this for oft touted resemblance relations.

For Aristotle the "What is it?" question should yield a reply (when interrogator and respondent are not at cross-purposes: Anscombe & Geach, p.12) that picks out a world item that falls under the category of substance. We might just apply such a prescription of yield to the case at hand. Thus if I ask you a "What is it?" question, and you reply "It is a form", then I should take it that you propose a form to be a substance item. Would it make any sense to treat of an Aristotelian form as a substance? Well, according to doctrine one peculiarity of substance is that it can receive of contraries and yet survive such receipt. Observe the next:

It seems most distinctive of substance that what is numerically one and the same is able to receive contraries. In no other case could one bring forward anything, numerically one, which is able to receive contraries. For example, a colour which is numerically one and the same will not be black and white, nor will numerically one and the same action be bad and good; and similarly with anything else that is not substance. A substance, however, numerically one and the same, is able to receive contraries. For example, an individual man - one and the same - becomes pale at one time and dark at another, and hot and cold, and bad and good. Nothing like this is to be seen in any other case [*Malista de idion tes ousias dokei einai to tauton kai hen arithmo on ton enantion einai dektikon; oion epi men ton allon oudenos an echoi tis proenegkein, ho hen arithmo on ton enantion dektikon estin. oion to chroma, ho estin en kai tauton arithmo, ouk estai leukon kai melan, oude he aute praxis kai mia to arithmo ouk estai phaule kai spoudaia, hosautos de kai epi ton allon, hosa me estin ousia. he de ge ousia en kai tauton arithmo on dektikon ton enantion estin. oion ho tis anthropos, eis kai ho autos on, hote men leukos hote de melas gignetai, kai thermos kai psychros, kai phaulos kai spoudaios. epi de ton allon oudenos phainetai to toiouton*](Cat. 4a10-21).

This is helpful. In receiving of contraries a man can be angry one day and calm the next, and still be the same man. A man's being a substance thus explicates facts of identity, facts of change²⁰. Such a peculiarity would not seem to accrue to a form. It does not seem to make sense to propose that the form of health, say, is prone to receive of contraries. One day the form is white and the next day black? No. One morning the form is sharp, that afternoon blunt? Not kosher. Such proposals ring hollow. A form does not seem to be the sort of thing that draws such predicates (let alone such contraries *as* predicates). It seems weird to ask that a form receive of contraries. Which contraries would we nominate?

Grant that we suggest that the form of health has property *S*. Grant that property *S* philosophically fund the explanatory power of the form of health. Whenever the form juxtaposes with a matter component it is property *S* that ensures that the form will be properly exemplified. Given this result we are loathe to nominate that the contrary of *S*, say, *T*, accrue to the form. If the form of health loses *S* and receives *T*, and *S* is that property which secures the physician's ability to practise medicine, then *T* would seem to deprive the physician of the powers most relevant to the possession of the form. I submit that it makes sense to deny that a form can receive of contraries such as this. I also submit that there is a significant range of predicates which seem inappropriate to attach to form *qua* form. This negative result seems to deny forms substancehood. It does deny them such. Aristotelian forms are non-substantial. What are the implications of denying forms substancehood?

We have denied that forms are substances. Can we still throw "What is it?" questions at form? Well, we must. Surely, if we are to continue our inquiry we must keep asking what forms are, what they are not? Perhaps we should take it that forms *are* such items as do not reward such pungent cross-examinations. Better: perhaps we should take the next question as being philosophically barren, *viz.*, *What-is-it-to-be-a-form?* After all, we know something of what forms *do*; they determine matter components when suitably juxtaposed, they regulate figure and function. Is this information not sufficient to ground an investigation into resemblances holding between forms (thereby funding cognitive episodes)? This is tricky. It does seem as if the *What-is-it-to-be-a-form?* weapon is less than accurate. It seems more likely to explode in our faces than illuminate

²⁰ Jonathon Barnes makes the point that a favourite metaphysical resource can work in one theoretical habitat & fail to work in another: "The truth is that the apparatus of matter of form was developed by Aristotle in order to solve certain puzzles about the nature of change; its success with those puzzles encouraged him to extend it to other fields and other puzzles, where as often as not it proves merely obfuscating. That, I think, is so in the *de Anima* (Barnes, p. 106/7)".

philosophical terrain. But can we settle for taking forms *qua* form as simples? What does the treatment of forms as simples do for the Burnyeatsian conceit of the cognizer coming to *form-resemble* the cognizeable (without coming to matter-resemble same)?

Surely, explications become costive once the unanalysable forms have been grafted onto the Burnyeatsian formula. I can't do much with a putative form-resemblance if I can't do much with a form. What *can* I do with a form *qua* form? Well, once I know what form it is I can tell you what it does²¹. If it is the form of health and the physician *qua* physician has it in his soul, then I can tell you (after the model) what his having the form enables him to do. But this is all stipulation. If the physician is incompetent or a quack, and the incompetent quack is unable to cure his patient, then I simply deny that he has HEALTH in his soul. As theoretician I can't lose. Such glib tactics are not satisfying. What else do we have?

When it comes to a cognition case-study perhaps we are wasting our time asking that a resemblance relation holding between forms *qua* form. If the forms *qua* form are primitively, then perhaps any relations holding between them *qua* relata are also primitives²². In which case we need simply feed candidate perceivers into the authorized formula (thus):

"For (Hephaestos) to (taste of) (a butterscotch pudding) is for (Hephaestos) to resemble (a butterscotch pudding) in form but not to resemble (a butterscotch pudding) in matter."

And Hephaestos' butterscotch-pudding form-resemblance is taken as primitive and unanalysable. We either accept it as a possibility or we do not. Refined instrumentations will prove useless. Repeated field-trials are forlorn. The formula does not pretend to provide us with any means to discriminate between candidates. Successful candidates are endorsed thanks to our pretheoretical intuitions. Unsuccessful candidates have no recourse to supertheoretical appeal. The pingpong ball (in the next given trial), I proffer, has little chance:

²¹ Even the tone of this claim smacks of hoax. Can I muster anything other than paraphrase? HEALTH accrues to the physician's soul, yes (after the model). This form funds various paramedical behaviours (after the model). I observe a sample of those behaviours. I declare that this sample accords with a doctor having HEALTH in his soul. What sort of proof have I assembled to back this claim? How do I connect my samples to my form? Is *this* connection made *a priori*? Surely not.

²² Permutations of this are endorsed and (weakly) flagged: 1, If the forms *qua* form are primitives, then perhaps any relations holding between them *qua* relata are (also) primitively; 2, If the forms *qua* form are primitively, then perhaps any relations holding between them *qua* relata are also primitives primitively.

"For (a pingpong ball) to (taste of) (a butterscotch pudding) is for (a pingpong ball) to resemble (a butterscotch pudding) in form but not to resemble (a butterscotch pudding) in matter."

The result is predictable and banal. The question is this. *Does our ability to discriminate between candidates stand in need of explication?* If it does not, then Burnyeat's proposal is, I suppose, philosophically responsible²³. At this point, however, we are more ambitious. We do not want to fall back on intuition. We want to *analyse* these intuitions, properly assess them, uniquely characterize them. Is not this the *task* of first philosophy? Let us grant that it is something like it. Let us grant that philosophical analysis can throw some light upon the next questions:

1, What is it to cognize a horse?

2, Why is it that I can cognize a horse and a coathanger cannot?

3, How is it that I can form-resemble without matter-resembling a horse and a coathanger cannot?

It will be our megalomaniacal task to approach these queries. Objection: Has Aristotle (in tandem with Myles Burnyeat) not answered questions 1 and 2 for us? Well, Aristotle has stipulated that to cognize a horse is to be a potential horse. We found this answer less than convincing. We pressed the Stagirite for more details. We received of doctrine which told of the horse-cognizer receiving of the form of the horse without receiving of the horse-matter component. We found this explication informative but difficult to explicate. Myles Burnyeat augmented the Aristotelian account with a resemblance twist. A man can cognize a horse because a man can form-resemble a horse without matter-resembling a horse. This form-resembling without matter-resembling was said to be the correct reading of doctrine. But we were sceptical. And pressed Burnyeat further. Why can a man form-resemble without matter-resembling a horse and a coathanger not so horse-form-resemble without

²³ Apathy & lethargy can masquerade as philosophical responsibility. If no thought has gone into the problem of whether the problem is a genuine philosophical problem or not, then treatment of the non-problem as non-problematic is hazardous & unscrupulous. Explanatory rationalism (Bennett (2001a), *passim*) asks that all world furnitures & transactions between same be philosophically explicable. Perhaps this is truly megalomaniacal. Should we ask merely that items & operations ratified by a research programme be explicable *in principle*? Or that the number of transactions that are declared provisionally immune to analysis is so few that they do not interfere with general curiosity?

horse-matter-resembling? Burnyeat ended his explication here. The form-resemblances and concomitant matter-non-resemblances involved are primitive²⁴. Do not attempt to analyse them. Men simply have this form-resembling-without-matter-resembling ability. Coathangers do not. At which point we balked. Philosophy should go deeper. Explanations should not end so early. Therefore our project looked set to continue (lucubration was promised). It continues by way of a tiny detour. The detour sticks close to the theme of form-resembling-without-matter-resembling. It concentrates on the matter side of the equation.

a13: A problem involving matter. Doctrine forbids the successful candidate cognizer standing to the cognizeable as matter. Matter is linked to potentiality. Potentiality has already been linked to successful perceptual episodes. Theoretical resources confound successful account.

Just as we have struggled to fashion a satisfying and coherent account of a form-resemblance obtaining between candidate cognizer and candidate cognizeable so, I will argue, we struggle to fully explicate the *forbidden* matter-resemblance. We might have anticipated something more coherent in something more concrete. But there is nothing concrete in Aristotle's definition of matter. And we should not necessarily mourn the concrete in this case, for there is plenty to work with philosophically. Aristotle's definition of matter is in many respects a delight, and it is only when we run the definition alongside the endorsed metaphysical resources of the cognitive research programme that we breach coherence. The definition itself is given as an abstract formal principle (as follows):

.. - all things produced either by nature or by art have matter; for each of them is capable both of being and of not being; and this capacity is the matter in each - ..
 [apanta de ta gignomena he phusei he techne echei hulen. dunaton gar kai einai kai me einai ekaston auton, touto d'estin he en ekasto hule] (Met.Z 1032a20-22).

Father Owens gives this a little twist (thus): "The matter of a thing .. is the capacity or potentiality to become something else (Owens, p.339)". With this definiens the definiendum flies apart²⁵. The world of *res extensa*

²⁴ Non-matter-resemblance will prove as fractious a business as form-resemblance. The only thing more treacherous than either non-matter-resemblance or form-resemblance will be the relevantly endorsed matter-resemblances. Discretion is advised both when endorsing and forbidding rogue likenesses.

²⁵ A slightly less abstract definition appears in the Physics: ".. my definition of matter is just this - the primary substratum of each thing, from which it comes to be, and which persists in the result, not

is sundered by an alert fungibility. Butterscotch puddings lose something and gain something. Lose something apparently concrete. Gain something immensely flexible and empirically fecund. We are attracted to the definition. The problem with the definition does not become salient until we apply it to the cognitive transaction. Butterscotch puddings (and the like) will help illustrate the difficulty.

According to the Aristotelian account it is expressly forbidden that the candidate cognizer receive of the matter of the candidate cognizeable if the transaction is to be endorsed as genuinely cognitive. Plants, as we have shown, are denied cognition of lamps because they take in the matter of the lamp with the form. Plants cannot see lamps. Plants cannot taste of butterscotch puddings. Men, however, can taste of butterscotch puddings and see of lamps. Men refrain from taking in the matter of the lamp when they take in the form. This has been established as Aristotelian doctrine. The difficulty comes when we pair up form and actuality, matter and potentiality (as we have been authorized and encouraged to do). A case-study will suffice to track the difficulty.

Hephaestos takes in the form of the butterscotch pudding when he tastes same. Form is actuality. Hephaestos does not take in the matter of the butterscotch pudding when he takes in the form. Matter is potentiality. Hephaestos tastes of the butterscotch pudding. To taste of the butterscotch pudding is (after the model) to be potentially a butterscotch pudding. Hephaestos, in order that he taste of the butterscotch pudding, must stand to the butterscotch pudding as potentially it. Matter (again) is potentiality. For Hephaestos to stand to the butterscotch pudding as being potentially the butterscotch pudding is for Hephaestos to stand to the butterscotch pudding as matter (potentiality). Were it not for the Hephaestos component *matter* Hephaestos *qua* candidate cognizer could not stand to the butterscotch pudding as being a potential butterscotch pudding²⁶. Yet

accidentally [*lego gar hulen to proton hupokeimenon ekasto, hex ou gignetai ti enuparchontos me kata sumbekos*] (*Phys.* 192a31)".

²⁶ Richard Sorabji notes problems relating to the *interpretation* of Aristotle's form-without-matter ploy thus: "Controversy has centered on an interconnected group of phrases. Aristotle says that in perception the sense-organ becomes like the thing perceived, is potentially such as the thing perceived is already, and receives the form of the thing perceived without the matter. Some (myself included) have taken these phrases, despite the mention of form, to refer to the material cause of perception, its physiological process. Others have taken them or at least the last phrase, to refer to the formal cause. There are two corresponding ways of construing the last phrase [*receiving the form of the thing perceived without matter*] grammatically. I have followed the oldest interpretation according to which it means that the organ receives form without receiving matter. On Philoponus' rival interpretation, the reference is to receiving form without *standing to it as* matter. (Nussbaum & Rorty, p.209)". So here, unwittingly, we follow John Philoponus. Of course, when matter is read abstractly, as an alert fungibility, standing to something *as matter* implies nothing of a stolid stance. What does it imply? Perhaps nothing more than that the candidate cognizer is *potentially* the cognizeable. All readings here, it seems to me, generate

Hephaestus is expressly forbidden from taking in the matter of the butterscotch pudding when he takes in the form. On both sides of the cognitive transaction there must be potentiality (matter). On one side of the transaction (Hephaestus' side) matter is expressly forbidden to stand, expressly forbidden to be exchanged. The account gets clogged up with rival job descriptions for potentiality. Hephaestus is therefore denied cognitive experience of butterscotch puddings (and the like). Matter, read as a formal principle (written as such to facilitate and characterize change and exchange), stalls the cognitive gambit. Form, authorized to uniquely endorse a cognitive transaction, asks that potentiality stand on both sides of the *tasting-of-butterscotch-pudding* ploy. This is too much to ask. Granting the request is contraindicated by doctrine. The account disintegrates. Repair and doubletesting is authorized.

How can we save the account? One option, clearly, is not to be so sanguine in our reading of Aristotelian matter as Aristotelian potentiality. Matter, we might submit, can usefully be read as "the potentiality to become something else", but it does not help to read *this* potentiality as the potentiality implicated in the cognitive transaction. No, it certainly does not *help!* It corrodes the implication. I think we are justified in treating of matter as potentiality. Given the ubiquity of the potentiality/actuality split as an explanatory device in *de Anima* (in particular) I think that we are more than justified in treating of potentiality broadly. The abstract slant of Aristotelian theory asks that definitions and principles complement each other. They must cohere. In this instance they clash. This is unacceptable. We (thus) have a number of bones to chew.

One bone has to do with the inadequacy of the form-resemblance relation in explicating cognition beyond touting a primitive tie holding between simples. We demanded something more egregiously philosophical²⁷. This second bone (now) involves mutually incompatible theoretical equipments, *viz.* matter and potentiality. These bones do not argue directly against a theory's plausibility, but they do identify key theoretical weaknesses. We are therefore reluctant to deliver positive verdict unto the Aristotelian research programme. At present the programme seems in part underdetermined, in part anomalous. I urge

theoretical tension. The resources available are plastic, perhaps too plastic to cohere, to offer finite solution.

²⁷ The results of our study may indicate, in fact, that there is nothing *more* egregiously philosophical than ending explications early and settling for primitive ties holding (naturally) between simples. The point (here) being that when analysis stops, the labels are chosen which flag the simples. If the analysis stops at the same point (across theories - metatheoretically), then we have little reason to prefer one label over another. Parsimony, however, would encourage us to plump for one label over two (relevant to the same freshly truncated enquiry).

charity of verdict. I suggest that we provisionally flag the Aristotelian theory of cognition as *incomplete*. Given this flagging our ambition is such that we want to further investigate the metaphysical resources made available by the incomplete account. This is correct. We do intend to continue our inquiry. Before we do, however, it will serve continuation and extension to table the central doctrines of the incomplete thesis.

a14: Tabling the results of our analysis of the Aristotelian account of cognition. Formulae are read off, full-blown hypostases only hinted at. Theory is flagged as incomplete.

The Aristotelian account of cognition has three versions. We list them next:

1: To cognize X is to be X potentially.

2: To cognize X is to receive the form of X without receiving the matter of X.

3: To cognize X is to form-resemble X without matter-resembling X.

Versions 2 and 3 bruit hypostasis to this extent: that a form is estimated to be such an item that accrues to the cognizer's soul. Aristotle endorses such a pungent reading of transfer:

Those who say, then, that the soul is a place of forms speak well, except that it is not the whole soul but that which can think, and it is not actually but potentially the forms [*kai eu de hoi legontes ten psuchen einai topon eidon, plen hoti oute hole all' he noetike, oute entelecheia alla dunamei ta eide*] (dA 429a26-28).

Encouraged to think of the soul as a locale to which the forms can accrue we might want to go further and say that the soul is a receptacle and the forms are proxies for external furnitures, proxies which go into this soul-receptacle. But we would be jumping ahead of doctrine. If forms are items which go proxy for external furnitures, then they are only potentially such items when they accrue to the cognizer's soul. And they only *potentially* go

into part of the soul (if the business of soul-receptacleness is to be read pungently). This is typical Aristotle. Hypostases are bruited and then liquefied. Items *are* items but only in a potential way. Containers can *contain* potential items but not flush with their ballast. We should be wary. We have flagged theory as incomplete and as worthy of further investigation. We have materials to work with. But we should not take these materials to be palpable, solid or necessarily discrete. Aristotelian metaphysical resources are plastic and often fungible. If we are to undertake a forensic examination of the theoretical scene, then we had better keep this plasticity and fungibility in mind. We might be at aporia and not know it. We may have breached impasse and not registered the breach. *Attention* (not caution) will be rewarded. At least this is the hope.

b1: If we are at aporia, then we request scholastic assistance. Thomas Aquinas proposes a refinement of Aristotelian doctrine. His proposal is vetted.

Our investigation of Aristotelian form (actuality) and matter (potentiality) has not (clearly) won through aporia. The theoretical equipments sketched by the Stagirite seem either too blunt or too plastic to explicate the transitivities constituting cognitive episodes. We need either refine or abandon theory. I propose that we exploit a refinement of the Aristotelian explication. The refinement I propose is authored by Saint Thomas Aquinas. We have met of this author. Myles Burnyeat hoped to make benefit of fires warming kettles, warming plants. The kettle was Aquinas' conceit. Indeed we will (reasonably shortly) work off *this very example*. Our interrogation of Aquinas will be highly expedient. Saint Thomas promises an update of Aristotle. He *comments* explicitly (and

systematically) on the passages relevant to our inquiry²⁸. Perhaps we can expect that he acclimatize the doctrine to Christianity. And this is certainly the case. But the commentator's public motivations for commentary do not immediately concern us. We want to make use of an update of the theoretical equipment endorsed and honed (incompletely or no) by Aristotle. The equipment is familiar: form, matter, actuality, potentiality, resemblance relations (flagged as primitives), etc. We want to know if Aquinas endorses these equipments. Does he endorse these equipments? Well, he certainly exploits them. We claim that he *refines* them. Does Aquinas successfully refine (hone, update) the resources lent him by the Stagirite? Well, what would the neutral observer class as a successful *refinement* of a philosophical resource? This is straightforward. We want something that wins through impasse. We want to give certain notions holding between forms *qua* form more muscle - for example, the notion of a resemblance relation therewith. We are not satisfied with simples holding between simples. Such ploys exhaust our patience (and we fall back on our pretheoretical intuitions: which falling-back is contraindicated). We want philosophical resources which are plastic and yet remain firm enough to deliver genuine explanatory power. *We want results in the field*. Aristotle has not given us these resources. Therefore the demand for genuine, comprehensive refinement (if we are not to ditch theory altogether). Again: Does Aquinas refine the philosophical resources lent him by Aristotle *successfully*? We must examine any putative refinements at length.

We begin our examination (conveniently) in the *de Anima* commentary (thus):

.. Aristotle says first that We must universally and generally hold this to be true of every sense: that sense is capable of taking on *species* without matter, just as wax receives of the ring's seal without the iron and gold. But this seems common to everything that is affected (*Sed hoc videtur esse commune omni patienti*). For everything receives something from its agent, considered as its agent. An agent,

²⁸ Aquinas penned commentaries and discussions on a vast number of Aristotle's works, among them *de Anima* & *Metaphysica*. To indicate that he was familiar with the theoretical resources of substance, form & matter would be to understate the case. Aristotelian doctrine has been more than satisfactorily digested. That is not to say that he simply repeats the teachings of the Stagirite. One must bear in mind that distinct theses are being worked off the original texts, theses & procedural slants which often rebuke Greek thought. Would it be fair to say that Aquinas was happier to entertain commerce with abstract objects than Aristotle? Possibly so. We will demonstrate that Saint Thomas' insistence on the perseity of intentional forms makes his theory vulnerable to idealism. Nonetheless, in so insisting Aquinas claims to update The Philosopher. We will enjoy this tension between simultaneously rival & complementary theorists. The abstraction of some of the results need not vitiate philosophical traction.

however, acts through its form and not through its matter. This is apparent even to the senses. For air does not receive matter from the fire acting on it but instead receives a form. Therefore it does not seem special to sense that it can take on *species* without matter (*non igitur videtur hoc proprium esse sensus, quod sit receptivus specierum sine materia*) (Pasnau, p.282).

The passage explicitly comments on doctrine ("Aristotle says .."). We are familiar with doctrine. We should note, therefore, two radical updates of said. Radical update 1: the business of taking on form without matter is *not* unique to sense. Radical update 2: 'form' becomes '*species*'. Radical? How radical? Granted, RU2 is not transparently radical. RU2 may be no more than a translation. 'Form' (Aristotle's '*eidōs*') may well have just become '*species*' (without switch of philosophical employs). Even if this is not the case it will be worthwhile to treat of it as kosher. Allow that we provisionally stipulate that '*species*' is simply Aquinas' Latin translation of Greek '*eidōs*'. We may well return to this putative update (provisionally tagged NTR: not transparently radical)²⁹. We will immediately concentrate

²⁹ The philosophical machineries implicating kin of *species* are worth staying clear of. In the passage cited *species* does simply supplant Aristotle's *eidōs*. Aquinas gives the relevant passage from *de Anima* before he comments upon it. Said passage (containing the wax & signet-ring example) reads '*species*' where a modern translation would read 'form'. OK. Such justifies treating this particular passage as a translation. But there is more to it than that. The Blackfriars edition of the *Summa Theologiae* provides the rash exegete with an Appendix in Volume 12 (pps. 167-169) and same delivers no less than four types of Thomistic *species*: 1, *species intelligibiles* (form); 2, *species sensibilis* (impressed image); 3, *species expressa* (or *intentio*, or *ratio*, or *immobilis habitudo: in qua, that in quo, the term*); 4, *species impressa* (*qua the id quo*). Before the species hatch more philosophical isotopes I suggest it would be prudent to cite Aquinas himself. Thus: Exhibit 1 - "*Cognoscit enim corpora intelligendo, sed non per corpora, neque per similitudines materiales et corporeas, sed per species immateriales et intelligibiles, quae per sui essentiam in anima esse possunt* [For the intellect does know material things intellectually, but not by means of material things or material or corporeal likenesses of things; rather, by immaterial, intellectual species which can really exist in the soul] (*ST 1a, q.84, 2*)."; Exhibit 2 - "*Unde dicendum est quod species intelligibiles quibus anima nostra intelligit, non effluunt a formis separatis.*

1. *Ad primum ergo dicendum quod species intelligibiles quas participat noster intellectus, reducuntur sicut in primam causam in aliquod principium per suam essentiam intelligibile, scilicet in Deum. Sed ab illo principio procedunt mediantibus formis rerum sensibilium et materialium, a quibus scientiam colligimus, ut Dionysius dicit* [We should conclude that the species by which our soul understands do not come from subsistent immaterial forms. Hence: 1. The species our intellect has by participation come ultimately from a first cause which is a principle essentially intelligible, namely God. But they proceed from the principle through the medium of sensible, material things, from which, as Dionysius says, we gather our knowledge] (*ST 1a, q.84, 5*). We can glean a definition for *species intelligibiles* from these two passages. It is the next: the *species intelligibiles* are those items by which we know material things and they come to our soul from those material things. OK, so we have something like an Aristotelian job description for the role these *species intelligibiles* play in the cognitive theatre. We are not authorized, however, to treat of the *species intelligibiles* as Aristotelian forms *qua* the items which secure & regulate Substance's various exemplification. Given that we are *primarily* interested in the cognitive acquaintance between man *qua* cognizer and substance *qua* cognizeable I will argue that we can settle for this limited *form-species* identity. We so settle undergirded by the work of Brian Davies in nurturing limpid doctrine (thus): "A form exists when there is a definite thing or a property or attribute predicable of things. Though he believes that there are

on the first update (fairly transparently radical:FTR).

b2: Reworking the form-without-matter ploy. Developing a new (superaristotelian) sufficient condition for cognition. Rival modes of existence touted for superaristotelian form.

RUI does violence to the doctrine of *the-taking-on-of-form-without-matter*. We have established that for Aristotle this constituted a sufficient condition for cognition. If candidate *X* took on the form of candidate *Y* without taking on the matter of candidate *Y*, the candidate *X* was a successful cognizer, candidate *Y* a successful cognizeablee. Aquinas has snuffed out this sufficiency. The *taking-on-of-form-without-the-concomitant-taking-on-of-matter* is apparently quite routine, ubiquitous even; all transactions involve such *taking-on-without*. Which result necessitates drastic reformulation of sufficiency. Otherwise we allow that all transactions are cognitive. And this is not to be endorsed. Aquinas recognizes this. He refines by postulating an ontological rift, a rift holding between forms *qua* form. The postulation is bold and unexpected:

We should say, then, that although it is common to everything affected to receive a form from its agent, still there is a difference as regards the manner of receiving. For

subsisting non-material forms (e.g. God), Aquinas holds that, as we understand them, forms exist in matter and are attributable to particular individuals. But he also thinks that, on the basis of acquaintance with particulars, we gain ideas or concepts in terms of which particulars can be classed, understood, or talked about. When we do this, he says, the forms of things come to be in a different sense from the way they exist as exemplified by the individuals whose forms they are. When knowledge or understanding occurs, forms come into being which are, not the forms of individual material things, but the forms of these things considered as objects of knowledge. Such forms are the 'intelligible species', as Aquinas calls them. And they come to be in us. They are the result of our minds getting to work on the data of sense experience and transforming it from a 'big, booming, buzzing confusion' to a world of meaning or understanding (Davies, p.127)".

sometimes the form that the thing affected receives from its agent has the same manner of being in the thing affected and in the agent. This happens when the thing affected has the same disposition for the form that the agent has. For everything is received in another according to the manner of the recipient. So if the thing affected is disposed in the same manner as the agent is, then the form is received in the thing affected in the same manner as the agent. In that case, form is not received without matter [*Nam forma, quae in patiente recipitur ab agente, quandoque quidem habet eundem modum essendi in patiente, quem habet in agente: et hoc quidem contingit, quando patiens habet eandem dispositionem ad formam, quam habet agens: quodcumque enim recipitur in altero, secundum modum recipientis recipitur. Unde si eodem modo disponatur patiens sicut agens, eodem modo recipitur forma in patiente sicut erat in agente; et tunc non recipitur forma sine materia*]. ... Sometimes, on the other hand, a form is received in the thing affected according to a manner of being different from the agent's, because the thing affected's disposition for receiving is not like the agent's material disposition [*Quandoque vero forma recipitur in patiente secundum alium modum essendi, quam sit in agente; quia dispositio materialis patientis ad recipiendum, non est similis dispositioni materiali, quae est in agente*]. In that case, a form is received in the thing affected without matter, insofar as the thing affected is made like the agent with respect to form and not matter. And this is how sense receives form without matter. For the form has a different manner of being in the sense and in the sense object: for in the sense object it has natural being, whereas in the sense it has intentional or spiritual being [*..sensus recipit formam sine materia, quia alterius modi esse habet forma in sensu, et in re sensibili. Nam in re sensibili habet esse naturale, in sensu autem habet esse intentionale et spirituale*]. (Pasnau, pp.188/9)

There is some important work done here in explicating the distinction between various transactions involving form. Perhaps the exact nature of the distinction can be illustrated schematically (as follows): let us first separate agent (Q) and patient (P) (and for convenience stipulate that both Q and P are substances). All transactions between Q and P , grants Aquinas, will involve a form (X). The explication of the distinction between candidate cognitions and candidate non-cognitions hopes to exploit the way X exists in Q and P . And the business of a form existing in a substance is cashed out in terms of a *material disposition for receiving the form* (MDF). Armed with variables we can take to an abstract field.

We can run a form transaction between substances. Form X can exist in agent Q in a certain way. That *certain way* can be understood in terms of Q having MDF1 for X . The type of transaction will be specified once we specify whether P has MDF1 (or no). If P has MDF1, then P will receive X in a *natural* way. The form X will exist in P exactly as it existed in Q (with *esse naturale*) (Pasnau, p.217: "I speak of a 'natural alteration' inasmuch as a quality is received in the thing affected in keeping with the being of nature - for example, when something is cooled, heated, or

moved locally [*Dico autem immutationem naturalem prout qualitas recipitur in patiente secundum esse naturae, sicut cum aliquid infrigidatur vel calefit aut movetur secundum locum*]). But if *P* has another material disposition for receiving *X* (say, MDF2), then *X* will not exist in *P* exactly as it did in *Q*. If *P* has MDF2, then *X* will exist in *P* with *esse intentionale* (and the transaction shall be a spiritual alteration: "A 'spiritual alteration' .. occurs in virtue of a *species*' being received in a sense organ or in the medium in the manner of an intention, not in the manner of a natural form [*Immutatio vero spiritualis est secundum quod species recipitur in organo sensus aut in medio per modum intentionis, et non per modum naturalis formae*] (*ibid.*)). The material disposition for receiving the form *X* must be evaluated (respective of agent and patient) before one deems a transaction natural or intentional. Nonetheless, it is always the mode of existence of the form (*X*) which is the determining factor. That the form can flit from agent to patient is assumed. That *P* will take *X* from *Q* is presupposed. How *X* will be housed in *P* is up for grabs. *X* may be housed naturally or intentionally. If intentionally (here's the rub), then we have evidence (proof!) of a cognitive transaction. Indeed the intentional existence of form *X* in patient *P* uniquely characterizes a cognitive transaction. For the form *X* to exist in *P* with *esse intentionale* is sufficient for us to characterize the transaction between *Q* and *P* as a cognitive transaction. (Further, this intentional existence of *X* constitutes the cognition). At least this is the proposal. What sort of proposal is it?

We have spoken of boldness. Is the proposal of an ontological split holding between rival instantiations of form any bolder than the Aristotelian proposal that a split divide the potential butterscotch pudding and the actual butterscotch pudding (the taster and the tasted)? Is this bruiting of *intentional* being merely a switch of nomenclature, a fresh labelling of the extant potentiality/actuality rupture? If the new posit is just a switch of label, then the posit is not new; nor is it all that helpful. Can we claim that Aquinas' treatment of a candidate cognitive transaction *improves* upon the Aristotelian? Recall that we were looking for improved plausibility, coherence and explanatory power. Have we found evidence of improvement. This is as yet unclear. Let us first ask whether we have found new sufficiency for the cognitive transaction, whether we have actually found an updated sufficient condition which is fully cognate with Aristotelian sufficiency. In short: Does the occurrence of an *esse intentionale* form in the soul of the cognizer constitute a cognition?

We should at least note some slippage with respect of doctrine. Aquinas permitted initially of the routine and ubiquitous character of *form-without-matter* exchanges. Then he seemed to fall back on supposedly defunct doctrine. Has Aquinas *refined* (here) or has he doubled up? Does a 'natural

alteration' involve the *taking-on-of-matter* with form *X* or not? Does a 'spiritual alteration' singularly eschew the material *taking-on* (and thus muster sufficiency)? Is matter implicated in the supposedly radical update?

Let us be charitable. Matter is implicated in the radical update, yes. But Aquinas is not pointing at the *taking-on* of matter in the *immutatio spirituali*. He concentrates (much as Myles Burnyeat does) on the material dispositions of patient and agent. When *P*'s MDF matched *Q*'s MDF a natural alteration was indicated. This did not involve the blatant swap of matter between *Q* and *P*. The relevant passage can be parsed afresh with this in mind: " .. if the (patient) is (materially) disposed (to receive the form) in the same manner as the agent is (materially) disposed (to receive the form), then the form is received in the (patient) in the same manner as the agent". Aquinas regards this, I proffer, as a radical update. In spite of the next sentence - "In that case, form is not received without matter". We charitably superpropose that Aquinas endorses a *natural alteration* which involves the taking on of form without the concomitant taking on of matter. This superproposal funds RUI. RUI reads as follows: all transactions involving form involve the taking on of form without matter. But we cannot rest content with RUI. In good time we must examine the coherence of proposing that there are some transactions which involve substances having matching MDFs and other transactions which involve substances having non-matching MDFs. Is this at all feasible? Within such an examination we may well have to draft in the Burnyeatsian suggestion that some substances come to *form-and-matter-resemble* other substances. Which suggestion we found incoherent (given the endorsed items and principles covered by the metaphysical rubrics of substance, form and matter). Until then, however, we accept that Aquinas has not abused new doctrine. We accept that RUI is genuinely radical; that a new sufficiency has been proposed to vet candidate cognitions. And we now ask whether a new sufficiency (one that hopes to exploit the intentional being of form) is philosophically viable. To ask: whether a difference of *esse* between forms *qua* form can adequately explicate cognitive content. A field trial is called for. Our variables need to be inflected. Have we candidates for a putative *immutatio spirituali*? We have.

b3: Rehearsing inflections of a spiritual transaction. Forms accrue to souls. Assessing superaggregates. Parsing the transaction with respect of authorized categories of Being.

Yes, we have candidates. And we find it expedient that our candidates

accrue to a pastoral backdrop. Thus we are to take a man, at a gate, and a horse, in a paddock. We propose the man play patient, the horse agent. After the model a form must be involved in any agent-patient transaction. This causes no great distress. We know from our metaphysical researches that a horse is a substance composed of form and matter. We pick out the form component of the horse composite and tag this form HORSE. Nothing could be simpler. The form HORSE must now be received into the man's soul. How is the form HORSE to be so received? Well, this depends on the man *qua* substance. How is *this* substance composed? Straightforward. We have another composite of form and matter. The form MAN and a parcel of matter (the form MAN having at *t minus x* unconditionally actualized prime matter). OK, so the MDF of the man will specify for us how the man receives of the form HORSE into his soul. If the MDF of the man is equal to the MDF of the horse, then the receiving of the form HORSE will constitute a natural alteration. If $MDF(\text{Man})$ equals 1 and $MDF(\text{Horse})$ equals 1, then the transaction will not be a sense transaction. And the man at the gate will not perceive the horse in the paddock. Fingers crossed³⁰.

Can we perform the relevant calculations (matching MDF to MDF)? We shall attempt to do so (next). What is the MDF of the man with respect of the form HORSE? One might intuitively reply that the MDF of the man for the form HORSE equals 0, given that the man *qua* substance already has a form, *viz.* the form MAN. How can the substance man receive of another form? His matter is now a 'this' thanks to its having been determined by the form MAN. And we now propose that he receive of the form HORSE? Monstrous proposal! But perhaps we should be less costive. After all we permit that certain forms accrue to the substance man. Which forms? The accidental ones. The forms that fall under the category of quality (accident). The forms WHITE, HOT, TIRED, GROGGY, INEBRIATED. A man can have of all these forms and still retain his substancehood. His ability to receive of these forms (either over time or - in the case, as here, of compatible accidents - all at once) derives from his substancehood. It is a peculiarity (as we have seen) of a man *qua* substance to receive of contraries (HOT:COLD; INEBRIATED:SOBER; FLUSH:BANKRUPT) and still be the same man. Such result is victory for the *Categories*. Why are we then reluctant to allow of the substance man receiving of the form HORSE? The yield of such reception would be

³⁰ Yes, we anticipate the result. But we at least adopt the pretence that we could be surprised & informed by same. We wait to see if the thought experiment obeys both doctrine & pretheoretical intuition. It seems to have a chance to do both. (Again we assume reasonably optimum *X*-perceiving conditions: good light, opaque backdrop, sluggish parallax, catholic heterocosm.)

something like the next: the aggregate - man (form MAN + matter component) + sundry accidental forms (HOT, WHITE, 1.8M TALL, UPRIGHT, STANDING-AT-GATE, etc.) + the form HORSE. Is this aggregate not a plausible world item? Well, one might still be wary of admitting that the form HORSE can be received into the aggregate. For is not the form HORSE a *substantial form*? And is it not the case that substantial forms entirely actualize prime matter (to generate substances) (Bobik, pp.63-7; Pasnau, p.224)? Yes and yes. Do these affirmative replies not preclude the substantial form HORSE being received into the aggregate, given that the aggregate (substance + sundry accidents) is already home to one substantial form, *viz.* the form MAN? *Prima facie*, yes, we might acknowledge that two substantial forms cannot be housed in the same substance (at *t*). Aquinas offers an alternative to this preclusion with his touting of intentional form.

Alternative approach: Why do we presuppose that the form HORSE has but one mode of being the form HORSE, *viz.* the substantial (natural) mode? Is it not an attractive idea to consider an alternative way for the form HORSE to exist? Would it not be feasible to argue that the form HORSE can exist in the substantial mode in two ways, *viz.* in the natural way, with *esse naturale*; and in the intentional way, with *esse intentionale*? Response to alternative: Are we then proposing that the substantial form HORSE should accrue to the candidate cognizer (man at gate) as something like an accidental form? Or are we proposing that certain substantial forms can exist in a mode that is neither *fully* substantial nor *fully* accidental?

Reply to the first response: No, we are *not* proposing that the form HORSE, in this case, accrue to the man at the gate as an accidental form. If we were proposing such a thing then we should have difficulty distinguishing between accidental forms that (uniquely) mark cognitive transactions and accidental forms that do not. We should have difficulty distinguishing between a substance moving locally (or being so moved) (from or to a gate, a copse; away from a cliff-top) and a substance *cognizing*. If certain substances (candidate cognizers) are prone to receiving substantial forms as accidents and certain substances (candidate non-cognizers) are not so prone, then we will want to further augment our account in order that we explicate this proneness. Which demand would indicate that we have lost the muscle of a sufficient condition for cognition. Therefore, substantial forms such as the form HORSE do not accrue to certain substances as accidents³¹.

³¹ Let's just give this stipulation a little tweak. Imagine an empty chair in a room with a fire ablaze in the

Reply to the second response: Yes, it is being proposed that forms can exist in a mode that is neither *fully* substantial nor *fully* accidental. It is being proposed that forms such as the form HORSE can exist with *esse intentionale*. Items which exist with intentional being deserve their own category, we seem to grant. Problem: this hypothesized new category seems *ad hoc*. Whether this existence and this desert is *ad hoc* needs to be examined.

If we attribute a queer perseity to certain furnitures *simply* because we are at a loss as to how to account for the special operation of cognition, then the accusation that the attribution is *ad hoc* would be strong. Could such a charge be evaded? It might be evaded if we could show that the positing of intentional objects (which win their own category) enables us to perform significant philosophical work. The hypostasis needs be shown to be theoretically productive. We have to show that *esse intentionale* forms solve more problems than this *one*; that they solve more problems than they create. And this calls for lengthy interrogation of doctrine. Which we vow to undertake.

b4: Scrutiny & consolidation. Comparing intentional objects with potential/actual fungibilities.

We kick off with the next updated query. What does Aquinas' positing of intentional being achieve that Aristotle's positing of potential being did not? Better (more palpable): Can I make more of intentional horses than I

hearth. Why should FIRE not behave like an accident & accrue to the chair (to be thereafter exemplified non-naturally)? Reply: because chairs don't have souls & are thus deprived of intentional receipt. Too stolid. Alternative reply: because intentional forms just don't get received & expressed by substances such as chairs. Chairs can get hot, sure, & chairs can burst into flames; but in so doing they do not exemplify FIRE *intentionally*. Why not? How would we know whether a chair *ei* form-received or not? Perhaps chairs can *ei* form-receive but are unable to *ei* form-express. Time for stipulation. Chairs do not *ei* form-receive, nor do they *ei* form-express. Metaphysical stipulation complies with pretheoretical intuition. Complies with intuition, yes, but has difficulty *explicating* same.

could make of my being a potential horse (should ensemble sense-organs latch onto a nag in the paddock)?

Let us tentatively agree that Aquinas has succeeded in one respect. He has made it clear that being (*esse*) is implicated in the superaristotelian perception/cognition research programme. Under Aristotle's management, I submit, this implication was not perspicuous. Amidst talk of my *being potentially* the butterscotch pudding when I tasted of the butterscotch pudding we never took the ontological implications of this talk to heart. The question 'Am I potentially a butterscotch pudding?' failed to generate any seriously reflective replies. At impasse we fell back on crestfallen orthodoxy - 'Probably not'³². The business of potentiality was maltranslated. We should have been using the metaphysical resources supplied by the programme to link the next statements: Statement *A* - 'I have taken on the form of *X*'; Statement *B* - 'I am a potential *X*, having now *X*'s form (freshly superadded to my own)'. Aquinas' exploitation of form refines the Aristotelian account to this extent: we now see the import of the claim that the form of the agent can radically influence the patient *qua* substance. The patient *qua* substance is more once he has met of the agent (cognitively). *Substantially* more³³. More by a factor of *X*, the agent's substantial form. More perchance by a factor of *X*, where *X* is the intentional form HORSE(I), where HORSE(I) derives from the hoofed substance in the paddock. The *esse intentionale* horse, then, is the form HORSE as it exists grafted onto the aggregate cognizer. *Qua* form HORSE(I) (the *esse intentionale* horse) is non-identical to the form HORSE (as it exists alongside its designated matter component in the paddock). This non-identity of forms *qua* form secures (after the model) a sufficient condition for the cognition episode. Whatever candidates may be available to play patient and agent this non-identity of forms *qua* form uniquely marks a cognitive act. At least this is the claim. We have a genuine update of the Aristotelian *form-without-matter* sufficiency ploy. If

³² Two paths open with such superaporematic rebuttal. One path is that of the descriptive metaphysician. The descriptive metaphysician develops her argument thus: 1, [Doctrine gives the premise] To cognize *X* I must be a potential *X*; 2, [Field trials & pretheoretical intuitions give the premise] I am never a potential *X*; 3, I cognize *X*; 4, Doctrine is a sham. The revisionist metaphysician, however, obeys the implications of doctrine (thus): 1, To cognize *X* I must be a potential *X*; 2, I am never a potential *X*; 3, I fail to cognize *X* (whatever I experience is non-cognitive; cognitions are illusory). Does the approach one adopts depend on the weight one gives to pretheoretical intuitions? Do these intuitions include how one should approach a philosophical argument?

³³ *Intentionally*-substantially more. The exact ontological status of the intentional object has yet to be identified. We have claimed that it is neither fully substantial nor fully accidental. It deserves its own category, therefore we say it exists intentionally. If we ask what this entails, then we must ask dark questions of substantial & accidental form *qua* form: What is it to be a substantial form? What is it to be an accidental form? It is difficult to cash out either hypostasis without appealing to the composite's existence *qua* composite.

we run a trial which identifies intentional forms, then we can discriminate between candidate cognizers and candidate non-cognizers. The update model promises such a venture the opportunity for success. What virtue accrues to such theoretical promise?

We are currently engaged in an analysis of the efficacy of the following sufficient condition for the cognitive act:

If P receives of an esse intentionale form from Q, then P cognizes Q.

After the model *Q* will be a substance composed of a form existing with *esse naturale* + designated matter component + sundry accidental forms. After the model *P* (if the antecedent of the sufficient condition is satisfied) will be the cognizing substance, constituted by the following elements: substance composed of a form existing with *esse naturale* + designated matter component + sundry accidental forms + form of cognized substance existing in *P*'s soul with *esse intentionale*. Cognizer *P* as so constituted will mark out a cognizing substance with only one intentional item in its soul. Which (after the model) is cashed out in terms of a cognizer cognizing only one mother item. And this may be deemed empirically rare (even impossible). But it is not a logical impossibility. We can imagine a very *focussed* cyclopean organism that tends to the world in this costive fashion, one object at a time, dispensing of that object before tending to the next. Let us just say that such an episode would map a minimum, a minimum one step above a comatose cognition-capable substance, one step above a non-cognizing substance. What is important to note is that the occurrence of an intentional form in the candidate cognizer's soul *marks* a cognition (uniquely). We might further note that the sufficient condition is rather elaborate. It could, *prima facie*, be trimmed to the next. If an *esse intentionale* form exists, cognition occurs³⁴. And this minimalist sufficient condition would be satisfactory if our field trials were to concentrate on acts alone. Perhaps it is possible to have cognitions occur without them attaching to cognizers³⁵. We will not rule this out. Nor will we immediately concentrate on the philosophical reverberations of the claim. We are provisionally satisfied with a sufficient

³⁴ A form existing apart from matter marks either a knowable or a divine being (angel or deity). In the latter case we have a knower. In the mundane case we have a form existing with *esse intentionale* in a soul. John Haldane raises an intriguing contrast to this doctrine. He notes Meister Eckhart's teaching that intellect is marked by lack, not of matter, but of being (Haldane, p. 464-5). The idea seems to be that if the intellect was anything that had positive *esse*, then that *esse* would interfere with the being of the nature that was to be known (and disturb or vitiate post-transaction knowledge).

³⁵ But without *deriving from* or *referring to* cognizables?

condition which explicitly picks out candidate cognizers and candidate cognizables. We are happy to stipulate that these candidates are substances. If they are found then we will identify them *with* their acts. Can we so identify? We have the opportunity.

b5: Vetting the chances of the ei horse entering man-at-the-gate's soul. Tracking metaphysical life-histories of substance horses. Dissecting forms as they exist in cognizable, cognizer.

What odds are we to give that the *esse intentionale* horse accrue to the soul of the man at the gate? We noted when this prospect was first raised that these odds depended upon the respective MDFs of man and horse *qua* substance. So we plug away with the dependencies.

What is the MDF of the man at the gate with respect of the form HORSE? Is the *material-disposition-for-receiving-the-form-HORSE* of the man at the gate the same as the *material-disposition-for-receiving-the-form-HORSE* of the horse in the paddock? I contend that the respective MDFs are non-equivalent. How do I support this contention? Let us support our contention, first up, by sketching a metaphysical biography of the horse in the paddock.

The horse in the paddock is the *esse naturale* horse. The *en* horse is a composite. The composite is made up of the form HORSE and a matter component. Prime matter was unconditionally actualized by the form HORSE at *t*. At *t minus 1* there was no horse, no designated matter component, nothing save *potentiality*. When the substantial form HORSE arrives on the scene we are presented with a case of substantial generation. So far so good. Now some queries. What was the MDF of prime matter at *t minus 1* with respect of the substantial form HORSE? Well, prime matter is understood solely in terms of its potential for receiving of substantial forms. One might proffer that it is the exclusive concern of prime matter to receive of substantial form, *any* substantial form. It makes no difference to prime matter whether it is to be actualized by form HORSE, form GILLYFLOWER or form HIGG'S BOSON. We seem, therefore, to have two options. We can say *1*, that it makes no sense to speak of *rating* MDFs with respect of prime matter. Or we can say *2*, that the MDF of prime matter is absolute and generic; in which case it makes no sense to speak of material *dispositions* for receiving of substantial forms; for there is only one disposition. Indeed, this is all that the philosophical abstraction of prime matter *is* - a disposition for receiving substantial form. We should not speak as if the disposition were a disposition *of* an entity of any kind,

even of an inert and subsistent one. This is a result of sorts.

In the metaphysical biography of the *esse naturale* horse we can say that at *t* the horse is generated; but that at *t* the matter component had no unique MDF. So that at *t* it would make no sense to compare the non-unique MDF with any other MDF (unique - if substantially actualized - or non-unique). So we will not compare. We will not even propose that there was an MDF at *t* (not of prime matter and certainly not of the not-yet-generated horse). OK. So we move on past *t*. And find at *t plus 1* comfort with a composite.

We find the substance *horse*³⁶. Substantial form has unconditionally actualized prime matter. Thanks to the substantial form the matter component is now a 'this'. The form determines the matter and the matter component now individuates the form HORSE (from rival form HORSE instantiations and according to the doctrine of hylomorphism³⁷). But what of MDF at *t plus 1*? After all, the form has already been unconditionally received. The substance is now an *esse naturale* entity courtesy of a determined matter component. If we are to speak of material dispositions, then we can only speak of dispositions for housing the form. Which, I submit, is acceptable. We shall oblige and speak of an MDF relevant to the substantial form *having been received* (successfully). And now relevant to the form HORSE being housed in the composite. But is this legitimate? Can we speak of the form component being housed in the composite when it was the form component which unconditionally actualized prime matter to generate the composite in the first place? I think we can.

I think we can propose that the form HORSE exists in the *esse naturale* horse in a particular way. That the form HORSE is juxtaposed with *this* matter. Granted, the form (at *t*) actualized prime matter. The form *has* determined the matter. But at *t plus 1* the matter component of the *esse naturale* horse is identifiable (blood, guts, keratin, pelt) and is vital to the

³⁶ When dealing with particular case-studies involving substances and varieties of form we will, from this point forward, pick out a substance with these bold italics. *Horse*, thus, will indicate that we are dealing with a substance and that we wish to emphasize this fact. This is cognate with the employment of the *qua* resource but not identical with it. When it is important to know that a substance is a substance we will employ the bold italics. As such we are concentrating on the item's theoretical function. *Qua*, when it makes its appearance, will henceforth indicate that the substance item relates to or engages in commerce with other philosophical objects in so far as it is a substance. *Horse qua* substance will indicate that we are approaching matters from the point of view, as it were, of the substance. *Horse* picks out the world item from the point of view of a theoretical programme, inflected or no. There will be occasions when this subtle distinction earns its keep. At least this is the claim.

³⁷ "hylomorphism ... n. neo-scholastic term for the theory, in Aristotle's *Physics* and *Metaphysics* (Book Z, 1033a24-b19), that every material object is constituted by two principles: matter, which is by itself something potential only, and the form, that in virtue of which an object becomes actualized. The difference between change in one object, and a mere succession of one object by another, is that in the first case the matter (something indeterminate) remains. (Mautner, p.261/2)."

continuing existence of the substance³⁸. I believe that we are justified in saying that the form component of the horse is marked by existing in the substance. The juxtaposition of form with *this* matter secures for the form an individuality. This is, roughly speaking, the point of the doctrine of hylomorphism. The matter *individuates* the form (for the form (*sic*) are legion). Let us allow that thanks to its juxtaposition with the matter component of the substance *in* the substance the form HORSE is marked with signature *G*. Let us propose, *prima facie*, that the signature *G* is unique. This is a result of sorts. How does this result influence our reading of the MDF of the *esse naturale* horse at *t plus 1*? Well, signature *G* tells us how the substantial form exists with respect to everything else in the composite substance. With respect to *everything else*? But surely this undermines *G*'s stability? Howso? If *G* tells us how the substantial form HORSE exists with respect to everything else in the composite substance, then *G* tells us not only how the form HORSE exists with respect to the substance's matter component but also with respect to the substance's sundry accidental forms. For once the substance project *horse* is up and running sundry accidental forms will accrue to it non-stop. For as soon as the *esse naturale* horse has position *X* it will lose position *X* (for the horse will move locally, even in the womb). Likewise for volume, temperature, colour, height. The number of sundry accidents that may accrue to the substance is opened. Which openedness spells disaster for the stability of signature *G*. If the substantial form HORSE is going to be affected by its juxtaposition (perchance ephemeral) with an opened number of sundry accidental forms, then signature *G* will be in flux. If *G* is in flux, then it is hard to see how we can settle on a value for the substantial form HORSE's *way of existing in the substance*. For such would seem to vary over time³⁹. So allowing that the form HORSE be affected (with respect to how it exists in the composite) by the sundry accidental forms that accrue to the substance is contraindicated. So

³⁸ We have autonomy problems here (just as we had autonomy problems in the brazen sphere case-study). Does the horse-pelt (the hoof, the tail, the gizzard) not have a form? Yes. Then we cannot say that the horse is a composite of one form component & a matter component. Well, we can say that it is the horse that is the substance. The hoof will not survive the horse's annihilation, but the horse will survive the hoof's. When speaking of the matter component of the horse we will bear in mind that this matter component is composed of variously enformed parts. But this will not stop us from saying that HORSE covers all those parts *qua* contributors to & *qua* benefactors of *horse*.

³⁹ Objection: we might allow that signature *G* pick out a series of points in property space which track the form's way of existing in the cognizing substance. Such a series might generate a map (*G*) of the form's ontic co-ordinates & thereby identify the form's way of existing in *X* (over time period *J* through *H*). OK, this is a possibility. Nonetheless, we would have to insist that *G qua* series (or ontic map) remained stable. *It* could not fluctuate. So the problem remains (given that the number & variety of sundry accidental forms that could accrue to the cognizing substance *qua* substance is opened).

signature G , we stipulate, will not show how the form HORSE exists alongside sundry accidental forms. Which leaves us with just the matter component of the composite substance. Which is highly expedient because we believed that we were preparing to treat of *material* dispositions for receiving (or *housing*) the substantial form. So we plug away with the queries. What does signature G tell us about the MDF of the *esse naturale* horse (once the project *horse* is up and running)?

Signature G tells us a great deal. Indeed G seems to tell us everything about the MDF of the *en* horse. G tells us that the substantial form HORSE has been affected in way W thanks to its juxtaposition with the matter component of the composite substance. The form's being juxtaposed with *this* blood and *this* bone (etc.) has led to the form being affected in way W . In turn W has led to signature G accruing to the form HORSE. G provides forensic evidence as to how the form was housed in the substance. Which is the information we need in order that we come to know something of the composite's MDF. Our contention is, to all intents and purposes, that G is a unique signature, a fingerprint, if you like. In theory G could be used to match the form HORSE with the composite substance which at *t plus 1* through *t plus x* housed the substantial form. Which may be exactly what we want when it comes to making assessments about candidate cognitions. Because (if we recall) genuine cognitions were uniquely characterized by a difference in being between forms *qua* form in (respectively) agent and patient. And this difference in being was cashed out in terms of MDFs. Patient is successful cognizer when patient has a different MDF for form X (here, HORSE) from agent's MDF for X . If we know G for any X , then we can try and match X as it exists in (respectively) candidate agent and candidate patient. If G tells us that X exists in the agent in way W , then we record this yield and compare it with how X exists in the patient. We match yields. A positive result for cognition will be, of course, where G gives evidence that X exists in the agent in way W but that X exists in the patient in, say, way Z . That W does not equal Z will be sufficient for us to characterize the transaction as cognitive, the alteration as spiritual (intentional). At least this is the proposal. Will the proposal stand up in court?

I proffer that the proposal survives an opening interrogation but suffers under cross-examination. The opening interrogation closes the case for horse in the paddock and the man at the gate. We have shown that the substantial form HORSE is marked with signature G as a result of its juxtaposition (continuing juxtaposition) with the matter component of the *en* horse. It is claimed that the agent *en* horse will act on the patient (*man* standing at gate) *through its form* (HORSE). Knowing that HORSE is marked by G as it leaves the *en* horse, so to speak, we can track HORSE

as it accrues to the patient. Grant that the form transaction has been completed successfully. HORSE is now housed in the patient (as well as still being housed in the agent *horse*). The patient is a composite substance, given as next (shorn properly of sundry accidents; shorn of, for example, STANDING-AT-GATE): form MAN + a matter component. HORSE should have a signature other than *G* as it is housed in *this* composite substance. I believe it is clear that *G* does not survive the transplantation. HORSE now juxtaposes with a new matter component (blood, bone, pelt, yes; but no hooves, no tail ..) *and* a new form component. HORSE is no longer the only substantial form in town. It was contraindicated that two substantial forms should exist in the same substance in the same way. We observe contraindication. HORSE does not exist in *man* in the same way as the form MAN exists in *man*. Such homogenous co-existence is ruled out *a priori*. We then ask that HORSE exist in *man* with *esse intentionale* (if it is to be said to exist in the substance at all). Because HORSE exists alongside *a*, a new matter component, and *b*, an *esse naturale* substantial form, we hold that HORSE receives of new signature (*H*). We now compare *H* with *G*. The signatures (fingerprints) are non-identical. Cognition has occurred (after the model). The man has received of the form HORSE in the manner of an intention. *Man* has cognized *horse*. The case for the intentionality-bolstered superaristotelian research programme rests. Not so fast.

Granted, the form HORSE receives of new signature once freshly ensconced in a new substance. But we did not need to conduct a field trial to establish that signatures would not match. This was known *a priori*. Such non-identity of form *qua* form was stipulated in doctrine. For otherwise we should have had two substantial forms housed in the same substance, two substantial forms homogeneously co-existing. And this was deemed impossible. It is not as if we were waiting to see if it could happen or not. The point is (the case for the prosecution gathers pace) whether one substance (the patient) can *ever* receive of a substantial form from another substance (the agent) where the signatures of the respective forms are identical. And surely we have already excluded this as a possibility (after the model!). How on earth can you show that signature *G* will survive, as it were, a form transaction between rival substances? When such result would retard the whole metaphysic! The prosecution certainly has a point. It seems that we must allow that all form transactions are cognitive. Or we must fiddle with the available theoretical resources in order that we engineer a result with matching form signatures (post transaction). Which fiddling would be blatantly *ad hoc*. How can Aquinas hold to the notion of a genuine *natural alteration* when the theoretical equipments he exploits to run various alteration gambits speak against same? Aquinas gives us

some examples which purport to illustrate genuinely natural alterations (non-cognitive form transactions). It is crucial to his programme that these are credible. We must examine the examples thoroughly in order that we vet credibilities.

b6: Saving non-cognition. Investigating possibilities of natural alteration. Problems & resources. Kettles & fires.

Myles Burnyeat introduced us to one of Aquinas' examples of a natural alteration, the example of the fire warming the kettle. We shall examine it afresh with signatures and forms in mind. How can the transaction best be followed? By putting a kettle over a fire. *Fire* now warms *kettle*. We observe and hope to exploit available metaphysical resources to explicate the transaction. The fire plays agent and acts upon the patient kettle through its form (FIRE). FIRE has signature *B* as a result of its juxtaposition to the matter component of *fire*. FIRE now accrues to the kettle. The kettle is a composite substance: form KETTLE + matter component (determined to be a 'this' by KETTLE at *t minus x*). KETTLE exists in *kettle* with *esse naturale*. FIRE must now juxtapose with the *en* form KETTLE + a new matter component (copper, say, with a lashing of teak on the handle). FIRE must so juxtapose without disturbing *B*. It is difficult to see how this is possible. Let us be productively charitable and explore some options.

What if we were to stipulate that FIRE were not affected by the *en* form KETTLE? What if we were to say that FIRE were not really to be juxtaposed with KETTLE + copper and lashing of teak, but were to attach to the composite substance *kettle* by means of a fairly non-invasive procedure? Well, we would have to be careful. Care must be taken that we do not preserve *B* at cost of ruining *fire's* chance of affecting a change in *kettle*. Fire *qua* substance acts through its form (FIRE). FIRE must, therefore, affect kettle *qua* substance in a fairly invasive procedure (to the extent that it warms it). Can we run the transaction in a manner that allows that FIRE affect *kettle* but *kettle* does not affect FIRE (and disturb *B*)? This is unclear. It is true that we are not obliged to hold to pungent reciprocity. We are not, *prima facie*, dealing with Newtonian collision, rather with Aristotelian effect. Nonetheless the form FIRE has obligations, it is obliged to heat *kettle*. How does it do this? In Aristotelian physics the manner of influence is primitive. The form FIRE simply *influences kettle*.

Composite substance patient is changed as a result of meeting FIRE⁴⁰. The claim might be that there can be no more intricate analysis (certainly no reduction to tinier (atomic, subatomic) transience). Form does the work. Granted. But need the form FIRE be influenced with respect of signature *B* a result of this working? Let us provisionally concede that FIRE *qua* form (and with respect of *B*) need not be influenced by this working. Is this concession to be tolerated? Grant at least that in the case of some forms we already tolerate it. Which forms? The accidental ones.

Grant that the point of entertaining a metaphysic which endorses accidental forms is that they can be generically exemplified. The point of endorsing the form WHITE, for example, is that Rupert can be white and Frank can be white without eating away at whiteness. We can be less idiomatic (when bullied). Rupert can be white and Frank can be white without it being the case that there exists a WHITE that belongs to Rupert and a WHITE that belongs to Frank. If there were a WHITE that were Rupert's WHITE and a WHITE that were Frank's WHITE then we would have an embryonic theory of tropes. If we were to concede that Rupert's WHITE were really WHITE(A) and Frank's WHITE were really WHITE(Z), then we would be bruting a recidivist nominalism. I am reluctant to endorse such possibilities as Aristotelian⁴¹. A project suggesting that accidental form *Y qua* form be identical in each of each exemplifications *will* be endorsed. And given this then we have at hand a group of cases where a form *is* in an openended number of substances and *is in* those individual substances in the same way. So we have precedent. And it looks as if our precedent authorizes a treating of putative intentional forms as if they were accidents. Which was contraindicated (above). We indicated that such sanguine homogenous treatment of form would undermine the sufficiency of our cognitive sufficient condition. We did not wish that the *esse intentionale* horse accrue to the man at the gate as an accidental form. Why did we not wish to allow this? Because if *ei* substantial forms are to accrue to candidate cognizers as accidents, then there seems no reason why *ei* substantial forms are not to accrue routinely to candidate non-cognizers (gates, trees, copses, haysheds, meteors, jubilee teaspoons). If the man at the gate can receive of an *ei* form in the manner of an accident, then why can the gate itself not muster such intentional receipt (if *intentional* is what it is)?

⁴⁰ Patient is changed, yes, but the change is a change in the category of quality. *Kettle* becomes warm & then (perchance) hot. WARM attaches to *kettle* & then is supplanted (perchance) by HOT. FIRE does not become re-exemplified (unless the kettle bursts into flame).

⁴¹ Is such reluctance controversial? Yes, it is. Some philosophers plainly believe that Aristotle runs with a theory of tropes. I am reluctant to agree with them. Is my reluctance deep-seated? No.

There is another problem with treating of intentional forms as accidents. If *ei* forms are to accrue to cognizers as accidents, then why are not accidents to accrue to cognizers as intentional forms? If the horse in the field is white and the man at the gate cognizes the white horse, then when the man receives of the *ei* form WHITE HORSE why does the man not become white? Well, we might shake off pathology here by insisting that the man at the gate become white *potentially* - just as he becomes a horse *potentially* by receiving of the intentional form. Which insistence would demonstrate plasticity of response. But would then have to explicate why the kettle does not become a potential fire (but *does* become hot). For we cannot permit that the kettle become a potential fire, for then we would be authorizing kettles' cognitions of fire. We should, I hold, be cautious before *conflating* accidental forms and intentional forms. Do we *need* such a conflation (for it seems that we cannot afford it)? We do not (and we cannot). What is it we want (and what is it we can afford)?

We want the next. We want substantial forms such a the form FIRE to transact successfully between agent and patient (FIRE must account for the relevant changes in the patient post-transaction). We want that such substantial forms *qua* form not be affected as a result of their juxtaposition with the patient *qua* (limited) aggregate (*esse naturale* form + matter component). We want that whatever signature FIRE had as a result of its juxtaposition with the candidate substance fire, say signature *G*, not be lost or disturbed as a result of the form transaction. In short: FIRE *in kettle* should be identical to FIRE in *fire* (just as WHITE in Rupert should be identical to WHITE in Frank). If these demands are met, then we have an example of a *natural alteration* (non-cognitive). Aquinas would endorse such an alteration. He would endorse FIRE behaving like an accident in that it be identical in (respectively) patient and agent. Let us accept this result for the time being. The result is undeniably one secured and fortified by *stipulation*. This we deem satisfactory for now. We urge that theory limp forward. And move on (thus) to a putative spiritual (intentional) change.

*b7: Securing & specifying spiritual (intentional) alterations.
Bruiting successful cognitive episodes. Questioning this success.*

Back to the pastoral. HORSE must successfully transact with *man* so that HORSE exist in *man* with a different signature than HORSE existing in *horse*. HORSE shall not behave like an accidental form in this instance. HORSE in *man* shall be non-identical to HORSE in *horse*. This is not a

question of inducting sample results from the paddock (or the soul): (again) these are stipulations. The problem is that the stipulations must be theoretically justifiable. What is it about the form HORSE that makes it not behave like an accidental form in this respect? Why doesn't the form HORSE retain its natural signature in *man*? Is there something about HORSE *qua* form that makes it behave differently in respect of this transaction with *man* than FIRE *qua* form behaves in respect of its transaction with *kettle*? After all both forms are substantial forms. We will entertain the possibility that *fire* be cognized by *man* (whenever the two candidate substances cross paths). So FIRE can be involved in a cognitive transaction (as agent once again). So FIRE can be involved in both intentional and non-intentional transactions. Further, we will entertain the possibility that *horse* receive of sundry accidents; that these accidents juxtapose with the substantial form HORSE; that these juxtapositions *not* pick out intentional transactions (and the form HORSE cognize, absurdly, the form WHITE *in* the substance). Can we fall back on anything other than stipulation (doctrine) to explicate the special kind of behaviour of the form HORSE *qua* form in the cognitive transaction? Let us take a breath before falling back on doctrine. Thus. And permit of an objection to the treating of *transacted* forms as if they were accidents.

Objection: With respect to Rupert being white and Frank being white we do *not* treat of a form transaction. Rupert's WHITE has no causal connection with Frank's WHITE. Rupert might have been made white by Frank - perhaps Rupert leapt at Frank from the shadows, shouted 'Boo!', and the blood drained from Frank's face - granted. But even if there were a causal connection here it would not be a connection between WHITES. Rupert's WHITE can have no direct influence on Frank *coming-to-be-white*. So the comparison of this non-transaction with transactions such as that involving FIRE between *fire* and *kettle* are unhelpful. Form *transactions* involve substances in which the transacted form is *in* the agent in a way which is non-identical with the way in which the transacted form is *in* the patient. In which case it seems we must treat of all form *transactions* as examples of spiritual (intentional) alteration.

The objection is strong. Strong enough to warrant fresh analysis of a candidate form transaction. The key analysandum should be the identity or non-identity of the relevant forms post-transaction. Do the relevant forms inhere in agent substance and patient substance in the same way? Can we profitably compare their respective modes of existence with the WHITE *in* Frank and the WHITE *in* Rupert? A new case-study is authorized.

b8: The van der Lubbe case-study. The conceit of a substance expressing an ei form is touted and vetted. This conceit grafted onto the belly of a cognitive episode. Circularity problems for theory.

We will stick with WHITE as candidate form. Our transaction will implicate an agent causing WHITE to accrue to a patient. Our agent is a substance, a conceptual artist. Name of agent? *Van der Lubbe*. Our patient is a substance, a well-known central European landmark. Name of patient? The *Reichstag*. *Van der Lubbe* has funding and permission to turn *Reichstag* white. He plans to throw a gigantic white lace cloth over the building. When his work is complete *Reichstag* will reflect all wavelengths of light⁴². Certain monies will be deposited thereafter into a savings account. Our task is to observe WHITE as it accrues to the patient.

Question: Where is WHITE prior to the lace cloth being thrown over the patient? Flippant response: the WHITE is in the substance *lace cloth*. This is true and unhelpful. WHITE is in *lace cloth* but *lace cloth* will not be identified as agent substance in this case. Agent substance is *van der Lubbe*. Is *van der Lubbe* white? Portions of *van der Lubbe* may well be white. But these portions are irrelevant. WHITE is in *van der Lubbe* in a way which is not, as it turns out, visible to the naked eye. WHITE is in the soul of *van der Lubbe*, substance and conceptual artist. Consider the next:

.. from art proceed the things of which the forms are in the soul of the artist [*apo technes de gignetai hoson to eidos en te psuche*] (*Met.Z* 1032a32/3)

We have met of this trope. Previously it did work to explicate the form HEALTH as it stood (respectively) in patient (doubly so) and physician *qua* physician. Here the agent is an artist. Here the form WHITE is in his soul and WHITE will proceed from *van der Lubbe* into *Reichstag*. The two substances both have WHITE. Let us put that plainly. WHITE is shared by *van der Lubbe* and *Reichstag*. The difference is in how the two substances *express* WHITE.

How will *Reichstag* express WHITE? *Reichstag* will (when the project is complete) reflect all wavelengths of light. *Reichstag* will *be* white. *Reichstag* will exemplify WHITE. And what of *van der Lubbe*? *Van der Lubbe* has WHITE in his soul but *van der Lubbe* expresses WHITE in so far as he causes WHITE to accrue to *Reichstag*. *Van der Lubbe* does not exemplify WHITE by being white. *Van der Lubbe* does not exemplify WHITE by expressing all wavelengths of light. *Van der Lubbe* does not

⁴² Of course, there is more to being white than reflecting all wavelengths of light. But substantially more? This is unclear enough to puncture elaboration. We wax apathetic in the face of Snell's Law.

express WHITE in the sense that he *is* white. *Van der Lubbe* may well be white, but *van der Lubbe*'s being white is incidental to *van der Lubbe*'s having the form WHITE in his soul, to *van der Lubbe*'s expressing that form through his art.

Our analysis has given us new precedent. Here we have precedent which establishes that a form (*X*) can exist in agent and patient (respectively) and be expressed therein in different ways. Analysis has won through to a fairly limpid expression of how form can behave in a *coming-to-be-from* transaction, such that it exists one way in the agent and another way in the patient. How can this result help us to understand Aquinas' theory of *esse intentionale* form? Can we cash out the existence of an *ei* form in terms of what the substance which houses the *ei* form (the cognizer) expresses? This is an attractive possibility. We shall investigate the attraction.

How does the man at the gate express the *ei* form of the horse in the paddock? Well, the man at the gate cognizes *horse*? The *ei* form accrues to *man* (substance; patient) and constitutes such a *horse*-cognition. Well, how does *horse* (hoofed; nibbling on melick) express the form HORSE? The horse in the paddock *is* a horse. That's how *horse* expresses HORSE. Which can't be odd but seems odd. It is difficult to put the relationship between *horse* and HORSE into words. I don't know that we can do any better than to say that the substance *is* an exemplar of the form. Although HORSE is a substantial form it behaves like WHITE in this sense: it can be multiply and equally exemplified. Just as Rupert can be white and Frank can be white, so can Bonecrusher be a horse and Sunline be a horse. It is the matter component which individuates Bonecrusher and Sunline. *Qua* HORSE Bonecrusher and Sunline are identical. *Qua* HORSE, however, *man* (successfully *horse*-cognizing substance at gate) and *horse* are non-identical. HORSE is in *man*, it is proposed, in an intentional way. But this is nothing flash (necessarily). For HORSE to be in *man* is for HORSE to exist in *man*'s soul in *something like the way* in which WHITE was in *van der Lubbe*. We made sense of WHITE being in *van der Lubbe*. We cashed that out in terms of *van der Lubbe* (substance, conceptual artist) bringing it about that WHITE accrued to *Reichstag*. Now we can make some sense of HORSE being in *man*. We can cash this out in terms of *man* cognizing (perceiving/thinking of) *horse*. Which is a result of sorts. Can we have any complaints about the limpidity of this metaphysical demonstration? We are rarely short of complaint. The complaint here might be directed more at the explanatory power of the proposed formula than at the limpidity of the demonstration. The explanatory power of Aquinas' exploitation of independent *expressions* of form must now be considered. A field trial is called for.

We are to arrange a field trial that hopes to discriminate between candidate cognizers and candidate non-cognizers. We hope to exploit the updated superaristotelian formula. The updated formula is tabled (thus):

To cognize *X* a candidate must have the *ei* form of *X* accrue to his soul.

And this is cashed out in terms of the candidate cognizer *qua* substance expressing the form of *X* by cognizing *X*. The circularity is plain. The circularity is made plainer by inflecting the formula. We inflect the formula with the form HORSE. We then ask the next query: Has the candidate cognized the substance *horse*? The answer needs two steps. Step 1: We ask whether the *ei* form HORSE has accrued to the cognizer's soul. We have no obvious way of answering this query without going to step 2. Step 2 hopes to exploit a candidate substance's expressing the *ei* form (thus): Has the candidate expressed the *ei* form HORSE by cognizing *horse*? We compare initial query with final query next. Initial query: Has the candidate cognized *horse*? Final query: Has the candidate ... cognized *horse*? At which point we abandon the field trial. We cannot discriminate between candidate cognizers and candidate non-cognizers with these theoretical resources. So we fall back on doctrine (stipulation). To have the *ei* horse accrue to one's soul is (after the model) to cognize the horse. End of story. It is presupposed that we know what it is to cognize horses. So we are asked to explicate the existence of an intentional object in an occult field (a soul) by falling back on pretheoretical experiential knowledge. The best we can do to explicate the existence of the intentional object *theoretically* is to entertain the contrast between expressing the form as substance and expressing the form as cognizer of same. And we made *something* of this. We have entertained the relationship between HORSE (form) and *horse* (substance). We cashed this out (in part) in terms of exemplifying the form by *being* the substance. This exemplification was thought to be either banal or weird. It is both. And it is fundamental. Substance is that which *is per prius*⁴³. The being of substance funds all other projects: metaphysical, epistemological, aesthetic, etc. We have to make sense of *horse* being HORSE. And we do make some sense of it. And we have to exploit this basic exemplification

⁴³ "Because the word 'being' is used absolutely and with priority of substances, and only posteriorly and with qualification of accidents, essence is in substances truly and properly, in accidents only in some way with qualification (Bobik, p. 49)."

in order that we understand how *man* can take on of HORSE. And we struggle. It is tempting to want to break *this* exemplification of form down into simples. We have tried this and failed. The cognitive expression (exemplification) is basic. The cognitive expression depends on substance's Being, granted. Substance is temporally and logically prior to cognizers and cognizables. And (to reiterate) theory can only help us explicate cognitive expression of form by pointing at substance's natural expression of form. *Otherwise* we are to read *man's horse-cognizing* (thanks to HORSE inhering in *man*) as primitive. But is doctrine sound when it comes to the *order* of primitivity? Why should we have prejudice in favour of the substance horse? Why not tout the cognitive *ei* item as equally primitive to the *en* putative mother object? Has not the *ei* horse good grounds for *priority* of treatment? How can this be shown? By considering the case of the robust materialist (bypassing charity) *objecting* to the *ei* horse!

b9: Idealist vectors traced. Realist superaristotelian superstipulations. How can I explain cognition to my alien fiends? Are we satisfied with the explanatory power of theory?

Suppose that the passerby has followed theory thus far and is not convinced the *ei* horses exist (in the souls of cognizers or elsewhere). Suppose that this passerby aggressively ostend the horse in the paddock and deliver the next trope: "I can see your *esse naturale* horse, Thomist, but nowhere can I see your *esse intentionale* horse!". Would said Thomist be perturbed by this offensive ostension and concomitant claim? He should be. So should the passerby. For consider the yield of the ostension. Consider the passerby shoving her ring finger in the direction of *horse* and latching onto same with ensemble sense organs. What does the passerby get? Well, the passerby is *horse-cognizing*. What does the passerby get (after the model) when she *horse-cognizes*? Passerby gets the *esse intentionale* horse (same accrues to her soul to constitute successful *horse-cognition*). Passerby gets the horse she didn't believe existed accrue to her soul. This result pleases neither passerby nor Thomist (superaristotelian). For the same yield will apply for any cognitive act *Z* relevant to any candidate agent substance *Q*. And the road will be open to idealism. "Show me your natural horse, Thomist, all I can get is your intentional object!" I proffer that such idealism was not the goal of the project which incorporated intentional objects into its key theoretical equipments. Can Aquinas live with the idealist hangover? Can Saint Thomas speak against

it? What are the implications of the *ei* horse winning priority of treatment?

I submit that Aquinas would set out his proposal for cognition again, making plain the transitivities involved. The reproposal is limpid and familiar:

What is cognized is the next: the *en* horse. What is in the soul is the next: the *ei* horse.

The *en* horse is a substance. That the substance funds the occurrence of the *ei* horse in the soul is stipulated. It is not proposed that the independent existence of the substance horse can be proved through inducting *ei* horse samples. If proof is to be attempted it will be some sort of transcendental deduction, not an empirical survey of intentional items. Such a transcendental deduction might ask that *ei* horses (and the like) are ontologically dependent on *en* horses (and the like). But this could not be proved by appealing to the formula. The formula exploits the occurrence of intentional items in the cognizer's soul. It is not logically impossible that these intentional objects accrue to the soul independent of the existence of *esse naturale* mother objects. But the formula is not intended to generate a proof of the external world. We fall back on pretheoretical intuition when asked to consider the existence of intentional objects *independent of substances*. And considerations will vary. Given that we argued for a sufficient condition for cognition that does not claim to generate a proof of the external world we should not be disappointed when such a proof is not forthcoming. Our consideration, therefore, will be reasonably generous. Aquinas' formula for cognition hopes to exploit intentional objects. The *exact* ontological status of these objects is not specified. This does not open up theory to pathology. We are grateful. What we need to concentrate on is the explanatory power of the proposed intentional items. In particular we wish for some plasticity when cashing out the existence of these *ei* items in terms of cognizing substance *cognizing*. For this (it was shown) is circular (dissatisfying). What can be done? Let us set up another field trial.

Let us propose that we are hoping to explicate cognition to someone ignorant of cognitive episodes. To ask that the existence of an *ei* item be understood in terms of cognizing is useless in the case of someone who has no inkling of such episodes. Our correspondent (Joe) could be an alien life form (not *too* alien) or a philosopher playing dumb. Will it help to show Joe the *en* horse in the paddock? No it will not. Joe's ostending the *en* horse will (after the model) result in the *ei* horse accruing to Joe's soul. Assume that this happens. Joe ostends, the ring finger points at

Bonecrusher, the ensemble sense organs latch onto Bonecrusher (Joe is not so alien after all), *ei* Bonecrusher accrues to his soul (Joe becomes less and less alien). Can we expect, now, that Joe compare yields? No, because there is only one yield. Phenomenologically the *en* horse and the *ei* horse are identical (for Joe). Joe has not malostended. Joe has done exactly what we wanted him to do. How, then, can we generate explanatory depth? Joe has one familiarity-experience of *horse*. We encourage him to have another. And another. Expecting Joe to do what (with the identical results)? We can make no headway. We cannot *explain horse*-cognitions to one unfamiliar with *horse*. And how does one become familiar with *horse*? One cognizes (pretheoretically, athetically). Joe is valiant in this respect. But theory explains by appealing to phenomenological familiarities. If we wish that *these* be explained we cannot appeal to more intimate phenomenological episodes (because - after the model - there are none). Is this satisfactory? It is and it is not. We have made progress in explicating the superaristotelian theory of cognition. We have explicated theory but we have not thereby added to an Aristotelian explication of cognition. This seems preposterous. I contend that it is correct.

b10: Explicating the superaristotelian explication. Has theory advanced productively? Questioning theoretical immunities.

I contend that Aquinas' theory has made a genuine advance on Aristotle's. Aristotle left us with cognizers of *X* being potential *X*s. The ploy of potentiality was superadded to a metaphysic of form and matter. Aquinas has refined the ploy. We are now asked to treat of two modes of existence for (substantial-quasi-substantial) form in substance. One mode of existence expresses form by *being* that substance which the form has unconditionally actualized. The second mode expresses form by *cognizing* that substance which exists in the first mode. We can, of course, graft Aristotelian potentiality onto the account of the second mode. A cognizer is a potential *X* when she cognizes *X*. To be a potential *X* is to receive of the intentional form of *X* (subsequent to a form transaction between agent substance and patient substance). The two accounts are cognate. Aquinas' account is intended as a refinement of the Aristotelian account. And it is not clear that we can *do* more with Aquinas' account. It is just that we can see more clearly what sort of connection is being proposed between forms *in* substance. Both accounts, I proffer, exhibit significant theoretical economy. Both propose primitive cognitive transactions involving form. Such transactions cannot be further analyzed in terms of their components.

In treating of the complementary accounts we have investigated at length the way in which substance *expresses* form. The story turns on this very point. Aquinas made it plain that a massive compression is involved when rallying the endorsed metaphysical resources of form and substance. A great deal is shown with very little in the way of metaphysical furniture. Perhaps too much is shown to be immune to further analysis. Perhaps such immunity bothers us. Why do we stop here? How am I to explicate cognition to my alien friends? But the decision as to where analysis stops is not made arbitrarily. The decision is made in the context of various research programmes: ontological, epistemological, aesthetic, etc. The programme dealing with cognition occupies an important position in any more general philosophical theory. We can exploit this important position. We can (in order that we supercharge our analysis) ask the next. Why does the superaristotelian cognition project end where it does? Further, Why does it *begin* where it does? What led Aristotle to implicate potentiality in the putative explication of the cognitive ploy? What encouraged Aquinas to follow that lead, to *explicitly* twin the projects of Being and cognizing?

c1: Cross-examining metatheoretical motivations. Why would Being be hooked up with cognizing? The eye-jelly story. Aristotle expands on Empedocles. Aquinas expands on both. Problems with superexpansion.

To cognize X is to be X (potentially). Why would a philosopher entertain such an abstruse notion? What should lead me to implicate Being in seeing and thinking? Would my intuitions drive me to link my existence and the *tasting* of butterscotch pudding? Strange intuitions were this the case. Strange *tastes*. What would suggest such a queer connection? Let us try and win context.

Let us kick off with a metatheoretical principle which is salient throughout early Greek thought. Which metatheoretical principle? The metatheoretical principle of *like affects like*. Pick your field, this principle (it is claimed) will hold. It is at the very least a neat heuristical resource. If you face a philosophical problem, then turn to the resource of *resemblance*. We will tell of just one case-study. It is a rather grisly case-study (and discretion is advised): it involves eye-jellies going red (pink, incarnadine, chartreuse). It was once popular and attributed to the brave

Empedocles⁴⁴. We will tell the eye-jelly story on Empedocles' behalf.

The eye is composed of jelly. This jelly is prone to change colour. When the eye alights upon an external substance and this external substance is red then the eye-jelly goes red. This *eye-jelly going red* explicates perceptual content. This *eye-jelly going red* explains why you see red when your eye alights upon a red external substance. Why should this *going red* explain or explicate anything? Because *like affects like*. Problem: if like affects like, then why does the red external substance not affect something like it, perchance another red external substance? If like affects like, then why do not ripe tomatoes affect ripe tomatoes in a cognitive way? Solution to problem: it is the eye-jelly's *going red* which is exploited to explicate cognitive content⁴⁵. If the eye-jelly were *already* red, then when it met of, say, a ripe tomato, it would not be capable of going

⁴⁴ As Beare reads the Empedoclean account of vision the various constituents of the eye react to the various world furnitures as follows: "The eye, like all other things, is constituted of the four elements. In its interior is fire; next outside this comes water, both being again enclosed by air and earth. The whole eye is compared ... to a lantern in the centre of which (corresponding to the crystalline lens) is the fire. Between this and the earthly cornea comes the water, which is separated from the fire by a fine, delicate membrane. The fire can penetrate these outwards, as light passes through the sides of a lantern, while emanations from objects also can come in, so that according as they proceed from bright or dark objects they may enter into and pass through the corresponding pores of the fire or of the water. 'By like we know like.' With the intraocular fire we perceive the emanations of fire, i.e. *white*; with the water we perceive those of water, i.e. *black*; and so on. The pores of the fire and those of the water alternate in the eye; and the fire being able to pierce the water, we may suppose them thus arranged at the outer surface of the eye, so that both meet the emanations from objects at this outer surface (Beare, pps. 14-15)". Obeying this treatment we are probably not justified in describing the eye as a jelly, for it seems crucial to the *like affects like* ploy that the various elements of the eye maintain autonomy (and rebuke the colloidal mush). Richard Sorabji actually attributes the eye-jelly machineries to Aristotle. He reads the *kore* of *dA* 431a17 (*hosper de ho aer ten koren toiandi epoiesen*) not as 'pupil' (given by Ackrill) but as "the eye-jelly within the eye (Nussbaum & Rorty, p. 210). Victor Caston, meanwhile, accuses Empedocles of touting a very blatant exploitation of the *like affects like* gambit, namely that "which requires an exact replica of the object to be present in the subject if cognition is to occur (Caston: March 1998, p. 256)". And how does Caston ground this accusation? He draws on Aristotle (thus): "let us admit that the soul knows or perceives the elements out of which each of these composites is made up; but by what means will it know or perceive the composite whole, e.g. what God, man, flesh, bone (or any other compound) is? For each *is*, not merely the elements of which it is composed, but those elements combined in a determinate mode or ratio, as Empedocles himself says of bone, "The kindly Earth in its broad-bosomed moulds/ Won of clear Water two parts out of eight/ And four of Fire; and so white bones were formed." Nothing, therefore, will be gained by the presence of the elements in the soul, unless there be also present there the various formulae of proportion and the various compositions in accordance with them. Each element will indeed know its fellow outside, but there will be no knowledge of bone or man, unless they too are present in the constitution of the soul. The impossibility of this needs no pointing out; for who would suggest that stone or man could enter into the constitution of the soul (*dA* 409b30-410a12)".

⁴⁵ So cannot non-cognizers *go red*? What if the farmer paints his barn? Which colour does he choose to paint it? Red. So the barn has *gone red*. Yes. While this barn was *going red* (then), we are authorized to pick out a local *red*-exemplifier and say that the barn cognizes it. Absurd. Granted. The story is too crude as it stands to specify a uniquely cognitive operation. But there is no presumption against this *going red* playing some role in a theoretical model. It might simply be a case of plastering the tale with *ceteris absentibus* clauses. We suspect something more will need to be invoked. But it can be nothing occult and nothing egregiously *cognitive*. The story cannot be circular.

red (*dA* 418a3). If the eye-jelly could not *go red*, then the eye-jelly could see the red of the ripe tomato. That in response to meeting *ripe tomato* (substance) *eye-jelly* (substance) goes red (and thus comes to colour-resemble *ripe tomato*) hopes to explicate man's seeing red (given that man utilizes *eye-jelly*) (Pasnau, p.187; *dA* 417a2-9). So *like affects like* should be taken to read *like makes unlike like it thanks to perceptual transaction?* Not quite. The cognitive transaction is not complete until the eye-jelly fully colour-resembles the tomato. When both substances instantiate the universal '.. is red', then *seeing red* is actualized. OK, the model is alive. What happens to the model? The model is exploited by the superaristotelians. It is adapted to account for cognitive changes which implicate substantial as well as accidental change. The adaption is blatant when run alongside the Empedoclean model. The model is asked to perform explanatory work whereat it was not designed to go. Examples are easy to find. Pick a substance, *any* substance.

But we are fed up with tomatoes and horses .. Then pick of a stone. Next: train your eye-jellies on this stone. Allow that the model run. Grant that the stone is a certain colour. Tilleul-green? Tilleul-green is good, bucolic. So the eye-jellies go tilleul-green? They do so go. This explicates why you *see tilleul-green*. Next: grant that the stone is of a certain shape. Elliptical? Top-notch. Ellipses are exotic, popular (yet manageable). So the eye-jellies are plastic and they go .. elliptical? Such result accords with the model. The eye-jellies' *going elliptical* accounts for your *seeing ellipse*. So the model has done its work? It has done work, yes. But this work is not complete. Next: the model is asked to explain how it is that you *see stone*. And how is this to be achieved? Well, we run the model. So the eye-jellies are obliged to *go stone*? They are so obliged. But this is preposterous. Why preposterous? Because eye-jellies cannot become stone. Because for eye-jellies to become stone would abruptly end the seeing project (because stones are not usually plastic enough to adapt new shapes, to reflect new wavelengths of light). Because for eye-jelly to *go stone* would necessitate *substantial change*. And substantial change spells the end of a substance (in this case a grisly jelly)⁴⁶. In which case we need to fiddle with the model. How do we so fiddle?

⁴⁶ There might be an escape clause here for Empedocles. He might agree with us that it is absurd to expect the eye-jelly to *go stone*. But he might also insist that stone-cognizing is accounted for by *select features* of the stone to be freshly exemplified in the eye, eg. *round* and *white*. Such are forms which the eye-jelly *can* exemplify. The hope would then be that somehow these accidental forms were recomposed in the soul in such a way that they produced a version of the stone (in the soul). An incomplete version. But we would then want an account of *the selectivity* of the form-exemplifications. Why is the stone-surrogate incomplete? If the soul-stone *is* incompletely the field-stone, then why is the soul-stone *of* the field-stone?

How do we get the Empedoclean model of cognition to run for substance where it reasonably happily ran for accident? If it's plausible to expect that an eye-jelly undergo a change in the category of quality, then how can I make it plausible to expect that an eye-jelly undergo a change in the category of substance? You fiddle with the notion of what it is to undergo a change. You fiddle with the notion of *what it is to become a stone* (a horse, a tomato, a butterscotch pudding). And your fiddling will draft in the ploy of *potentiality*. The eye-jelly will not go stone when it encounters a stone, rather *it will become a potential stone*. Likewise for horses. Likewise for any substance under the sun. And this is the superaristotelian switch. At least it is a key part of the switch.

Another part of the switch is to expand the centre of change in the patient (candidate cognizer). Under Aristotle's guidance it is not the eye-jelly which will *go stone* (by *becoming a potential stone*), rather it is the candidate cognizer herself. Under Aristotle a cognizer will successfully cognize *X*, iff the cognizer becomes a potential *X*. Thus the transformation of theory is complete. And the transformer graft their favourite metaphysical resources of form and matter onto the model. The model takes to the field. Potential *X*s are, for the Stagirite, marked by their possession of the form of *X* divorced from *X*'s matter component. And this promises a sufficient condition for cognition. *Man* cognizes *horse* iff *man* takes on HORSE (without taking on the matter component of *horse*). If *man* takes on HORSE in such a fashion, then *eo ipso* man is potentially *horse*. And the metaphysical equipments make a tight knot around the philosophically primitive operation of cognition. A knot so tight that only our pretheoretical intuitions get through to discriminate between candidate cognizers and candidate non-cognizers. And we found this dissatisfying. We asked for refinement. Perchance we can see that the refinement we received from Aquinas also exploits an Empedoclean ploy which works off the behaviour of forms in accidental change. This can be demonstrated with an example of how Saint Thomas interprets the *existence* of accidental forms in a substance.

Consider the next:

.. in sensible things we observe that the same form can be in different sensible objects in different ways; for instance, whiteness can be more intense in one thing than another, and whiteness can be associated with sweetness in one thing but not in another [*Quia etiam in ipsis sensibilibus videmus quod forma alio modo est in uno sensibilibus quam in altero: puta cum in uno albedo intensior, in alio remissior, et in uno est albedo cum dulcedine, in alio sine dulcedine*] (ST, 1a, q.84, 1 responsio).

Put a cum in uno est albedo intensior, in alio remissior .. WHITE can

be more intensely in substance *X*, WHITE can *be* in remission in substance *Y*. As a philosophical interpretation of how the form WHITE can exist in a substance this is revealing. Consider Rupert and Frank. We claimed that Rupert and Frank were both white, that WHITE in Rupert was identical to WHITE in Frank. We now scrutinize another version of the Rupert/Frank WHITE story. This time Frank is whiter than Rupert. WHITE is more intensely in Frank than WHITE is in Rupert. In Rupert WHITE is in remission. Albescence is expressed along a scale. The form is expressed more in *Frank* than in *Rupert*. Next: the switch.

What if we were to treat of *substantial* forms as being more intensely in one substance than in another? What if the form ZOPILOTE were more intense in substance *X* and in remission in substance *Y*? Would the notion of competing intensities aid us in identifying candidate substances for *X* and *Y*? It just might. If the form ZOPILOTE existed intensely in substance *X*, then I might conclude that substance *X* was noneother than *zopilote*. How would I justify my conclusion? Well, I might point to *zopilote*'s being substantial form ZOPILOTE + matter component (*this beak, these claws, etc.*). I might argue that *zopilote* was the proper exemplar of the form ZOPILOTE. That therefore ZOPILOTE existed more intensely in *zopilote* than in anything else. Such reasoning would betray a prejudice for the actual. In spite of this betrayal the reasoning would be the skeleton of a half-decent argument. The premise we would really have to fight for would be the premise that matched natural exemplars (substantial form + matter component) with the greatest intensity of being for the relevant form. It would be interesting to see if such a premise was *contested*. Grant that the premise is not (here: immediately) contested. Grant that we are happy (as Aristotle is happy: *dA* 432a3-8) to see natural substances like *zopilote* best exemplifying the relevant substantial forms. The remaining task would be to identify the substance wherein the form ZOPILOTE was in remission.

Having surveyed Aquinas' investigation of how substance expresses form I believe that we are in a good position to identify substance *Y*. *Y* cannot be a substance to which ZOPILOTE has accrued as an accident. It was expressly forbidden that one substance could express another substantial form as an accident. *Y* cannot be a second *zopilote*, for then we should have to account for ZOPILOTE's existing more intensely in *zopilote*(1) than *zopilote*(2). There seems to no justification for this difference in intensity between sister exemplars. Which result leaves us with ZOPILOTE being expressed as an intentional form, *viz.*, as the cognition of *zopilote*, as the *zopilote*-cognition of a cognizing substance, of perhaps another *zopilote*, of perhaps *man, bullock, vulpanser, coyote*. Had we an instrument with which to measure the intensity of a form's

existence in a substance, then we should be able to discriminate between substances and cognitions. We would need to measure respective *esses*. Alas, we lack such instrumentation. We have but our pretheoretical intuitions. Granted, these are bolstered by theoretical considerations in the sense that we can expatiate upon our discriminations between candidate *cognized* substances and candidate *cognizing* substances post-discrimination. But there is no way we can go straight to the substantial form (as it exists in substances *X, Y, Z*) and discriminate through reading off the *esse* of that substantial form. We must consult the candidate substance's *expression* of the form (and stipulate that this expression is an expression of the *esse* of the substantial form in the substance). Of course, in the case of successful cognizers there will be (at least) two substantial forms in the (cognizing) substance. In which case our pretheoretical discriminatory resources will be stretched. We can stipulate that not two substantial forms can exist in substance *X* with *esse naturale*. That *zopilote* will not have had two ZOPILOTES unconditionally actualize prime matter to generate a *zopilote*. But other than that the number of *esse intentionale* forms in a cognizing substance is openended. Were we to pick out all the forms in a cognizing substance (at *t*) we should know that one of them exists with *esse naturale*. But would it be straightforward to identify that *en* form? Say we sifted twenty forms out of the substance. Would we be able to pick out the one form among them that existed with *esse naturale*? Of course! All we would have to do would be to cognize the substance (forms intact). *Our* cognition of the substance would be constituted by the *ei* form of the substance accruing to our soul. If this *ei* form were ZOPILOTE, then we could verify that the natural substance and mother object of the *ei* form were *zopilote*. Simple as that⁴⁷. But would we not be cognizing *zopilote* a second time when performing the philosophical chore of attributing ZOPILOTE to *zopilote*? Please explain your concern. Would not the subject of our cognition be *zopilote* if we were to try to hook up the intentional form we soul-possess to the *en* mother item (*zopilote*)? If so then would we not be on our way to regress?

Perhaps the concern can be put more pungently (thus):

Step 1, Wishing to identify the *esse naturale* form of the substance *zopilote* from other forms in that substance we *zopilote*-cognize:

⁴⁷ Nothing simple about it. How do we reliably connect *ei* form to *en* substance? There is immense difficulty in securing this connection. What criterion do we have for attributing intentional objects to natural objects? *Stipulation* comes after the form transaction is complete. Various respectable connections will be proposed. Their respectability will come under attack. Neither sceptic nor idealist will be convinced that respectability has been secured.

Step 2, Successfully *zopilote*-cognizing (after the model) we receive of an *esse intentionale* form;

Step 3, We then identify of *this* form (as the *ei* form ZOPILOTE);

Step 4, We then attribute the *ei* form ZOPILOTE to the substance *zopilote*, saying, in effect, "That form belongs to that substance! (*Possessio formae alterius ut alterius*⁴⁸)";

Step 5, We then identify the form ZOPILOTE (as housed with its matter component in *zopilote*) as the *esse naturale* substantial form component of *zopilote*. We have thus distinguished between the *en* form and any other forms in the substance. And we rest.

But there is concern, I believe, over steps 3 and 4. The steps can be telescoped for convenience. The concern is formulated as follows. Am I not involving myself in a cognitive enterprise when I identify the *ei* form ZOPILOTE and then attribute that *ei* form to the substance *zopilote*? Am I not *cognizing* when I negotiate such philosophical chores as identifying forms and attributing freshly identified forms to substances? If I am cognizing in steps 3 and 4, then what am I cognizing? In step 3 am I not cognizing the *ei* form ZOPILOTE? No, this is forbidden; the *ei* form is not a substance (therefore not a cognizable). Were the *ei* form to be a substance then the *ei* form would not only be prone to be cognized (which proneness, indeed, you seek), but it would also be prone to cognize. The implications of an *ei* form cognizing (*tout court*) are pathological. Were an *ei* form to cognize a substance *C*, then the *ei* form of the substance *C* would accrue to the *ei* form's soul (after the model). We suggest that we inoculate the research programme against such strains of cognition. We stipulate that *ei* forms are non-substantial and non-cognizable. The benefits of stipulation must be balanced against the costs. What are the

⁴⁸ Ross gives this formula and attributes it to Aquinas, but without noting his source: "... let us accept Aquinas' technical and admittedly recondite partial definition of 'knowing' as the *possessio formae alterius ut alterius*, 'the possession of the form of another as belonging to another.' For St. Thomas, however, this is not a complete definition, for he wishes to add the phrase: 'according to one's natural mode of possession.' So, 'knowing' is "the possession of the form of another as belonging to another according to one's natural mode of possession (Kenny (ed.), p. 123)". The formula is most perspicuous given the problems we are beginning to have when connecting intentional forms to natural substances. *Possessio formae alterius ut alterius* suggests that the intentional form carries a sort of genitive signature which speaks of its *belonging* to a particular substance. But what is this signature? How do we recognize its features? Ross gives no source and no details. I have been unable to track the formula to a Thomist text.

costs of this stipulation?

We begin cost-assessment with a query. How am I to perform such philosophical tasks as identifying *ei* forms, then after attributing same to substances, if I am forbidden from cognizing non-substances? Is it true that we ask that such philosophical tasks be performed? It is so asked. Then this request marks a significant retreat! Indeed, retreat is indicated. We will stipulate that the cognition model as it stands applies only to form transactions between substances. We thus exclude such operations as involve a candidate cognizer *thinking of* such items as universals, intentional objects, various model predicates, etc. Such candidates as involve themselves in such operations, we stipulate, will not be candidate *cognizers*. Which stipulation, it must be said, is something more than a modest retreat. It excludes a great deal of that which cognition might be thought to have embraced. So be it. In order to retain theoretical economy and avoid pathology the stipulations are endorsed. This is perhaps not the drastic reformulation of theory it seems to be.

All along we have been treating of fairly blunt (non-molecular) transactions implicating substances: men and women seeing of horses, Japanese songbirds, suitcases not-cognizing of orchids, butterscotch puddings. The vast explanatory power of the model was, it might be suggested, bound to shrink. Shrank it has. Our investigation has shown that there is room enough for difficulty *within the range of candidate* freshly stipulated. The business of forms transacting with rival substances has been shown to be intricate and full of traps. I suggest that the superaristotelians will have their work cut out defending the model as it runs between candidates *qua* form-expressing substances. In addition to this somewhat gloomy prediction, however, we must acknowledge the ingenious parsimony of the updated theory. A theory which linked being and seeing (touching, thinking) was unexpected. The unexpected theory has, I proffer, mapped new paths, entertained bold new connections between witness and world. For these entertained connections we are grateful. Can we now begin to entertain the notion that sensibles are kin? That a sullen glance will trigger off ontological transformation? The suggestion of moiety has been made. The moiety implicates form and the expression of form in Being. We are grateful (and perhaps still a little mystified). Can we close our project by noting these implications (and our gratefulness)?

No, I suggest that we cannot close here. For how grateful are we? Might we not feel that in the end we have been fobbed off with a clutch of esoteric tropes? We might so feel. Our dissatisfaction (then) deserves reward. I suggest reward obtain firstly in a critique of a Thomist defence strategy, *viz.* the proposal that formal identity provides a *solution* to the

cognitive problem.

c2: Does the ei horse's being a horse solve anything?

The next given passage can be taken as the opening submission for the Thomist defence. The defence is co-authored by Peter Geach and Elisabeth Anscombe. Here is their submission. (Context has been won thanks to our painstaking analyses of *ei* and *en* forms - we can (thus) dive straight into the text.)

What makes a sensation or thought of an X to be *of an X* is that it is an individual occurrence of that very form or nature which occurs in an X - it is thus that our mind 'reaches right up to the reality'; what makes it to be a sensation or thought of an X rather than an actual X or an actual X-ness is that X-ness here occurs in the special way called *esse intentionale* and not in the 'ordinary' way called *esse naturale*. This solution resolves the difficulty. It shows how *being of an X* is not a relation in which the thought or sensation stands, but is simply what the thought or sensation *is* - which is what we were tempted to say, but could not see our way clear to saying. (Anscombe & Geach, p.95)

A problem has allegedly been resolved. The defence of Thomist doctrine picks up and runs with an intentional solution. *The reason my cognition of a horse is a cognition of a horse is because it is a horse.* All relations between the object of the cognition (the *en* horse in the paddock) and the item that constitutes the successful cognition (the *ei* horse in the cognizer's soul) *save the relation of formal identity* are eschewed. Cause and resemblance relations do not need to be touted (defended) because they are not drawn upon. A defence, thus exploiting intentional *being*, hopes to greatly simplify the cognitive project. Now, we will grant that formal identity obtains between *ei* and *en* items (despite having unearthed a number of metaphysical problems involved with such identity obtaining). Having granted formal identity we will ask whether this formal identity really does the philosophical work that it is expected to do. Does the *horse*-cognition's being an intentional horse solve the problem (as claimed)? Is the *ei* horse's being a horse a solution we can be satisfied with?

I submit that we have reason to be dissatisfied to this solution. Consider the objection raised to such a putative solution (albeit one

entertained in another context) by Jitendra Nath Mohanty⁴⁹:

Of a blue jar, its blue is a real content, it is in fact a real part of the jar. The jar *is* blue. But of the cognition 'This jar is blue', it is odd to say either that it is blue or that it is not, for cognitions are just not the sort of thing of which colour predicates can be meaningfully affirmed or denied. Even if the cognition were blue, that fact, odd in itself, would not make the cognition *of* a blue patch. (Mohanty, p.40)

We will not concern ourselves with the business of category error in predicating *X*-nesses of cognitions. Following Mohanty's lead we will allow can cognition *P* be blue, pink, tilleul-green. Following Aquinas' model, indeed, we can go further and allow that our cognition *P* be a horse, a zopilote, a butterscotch pudding. We do not balk at such claims. We accept them. And we ask what their obtaining can do for us. OK, so there is an item in the cognizer's soul which is a horse. So what? What does this fact ("odd in itself") yield? Does it make the horse in the soul *of* a horse? Mohanty's point is that it does not. A cognition's being a horse does not make that cognition *of* a horse. A horse is a horse is a horse (intentional or natural). Bonecrusher is not *of* Sunline just because both Bonecrusher and Sunline *are* horses. Why should the *esse intentionale* horse's being a horse make the *ei* horse *of* an *esse naturale* horse? This query is unsettling. The cash value of the relation of formal identity purporting to hold between *ei* item in the soul and *en* item in the paddock (perchance) appears to be diminishing. The whole point of proposing that the *ei* horse be a horse was to explicate cognitive content (and intentional directedness) between cognizers and horses without falling back on causal or resemblance relations having to hold between forms and substances (or between anything else). We cannot ask that a causal or a resemblance relation supplement the identity ploy. For we would then have to explicate the supplementary relations⁵⁰. Mohanty's objection, I suggest, cuts at the heart of the Thomist cognitive model. We should examine the objection in greater depth. The superaristotelian project suffers updated attack. An updated defence is urged.

c3: Revisiting an intentional item's going proxy for the en horse.

⁴⁹ Mohanty attributes to Yogacarta Buddhism the view that *the cognition* 'This jar is blue' is blue.

⁵⁰ Peter Sheehan examines this *having-to-fall-back-on-supplementary-relations* predicament. His verdict is fairly savage. Why run with an esoteric identity gambit when you have to back it up with more pungent relations anyway? The explanandum's integrity is already undermined. (Kenny (ed.) (1969). pp. 307-21)

We have conceded that Aquinas' *ei horse is a horse*. Horses come in two flavours, those that exist with *esse intentionale* and those that exist with *esse naturale*. But flavours are nonetheless horse flavours. Both horses *are* horses. This *both being horses* was estimated to be of advantage to the project of cognizing horses. Mohanty's objection seems to undermine this advantage. Let us examine this undermining next.

Claim: When I cognize a horse and receive of an intentional item that is a horse the fact that the intentional item that I receive is a horse does not secure a watertight connection with the horse in the paddock that I cognize.

Version of same claim: The fact that the horse in the paddock is a horse and the fact that the horse in the paddock and the intentional horse in my soul co-instantiate the universal '... is a horse' is of no use to us in establishing respectable and reliable connection between soul-item and paddock-world-item.

These cognate claims are the crux of Mohanty's objection to the formal identity thesis. And the objection does not rest on the mode of being of the intentional horse or on the fact that the intentional horse comes without a matter component. These features of doctrine are irrelevant to the objection. We can allow that the cognition-horse (the thought-horse; the sense-horse) be a full-blooded horse in exactly the same way that the horse in the paddock is a horse. And we would not be (at this point) running a *reductio*. We would not be saying that flesh-bone-pelt-&-hoof horses cannot prosper in cognizers' souls. Not at all. We endorse their prospering. Our point would be that our allowing the cognition-horse to be a natural horse would not make that cognition-horse *of* a horse. It would simply make the cognition-horse a horse (yes, absurdly), but it would not make the cognition-horse a cognition *of* a horse. Which result is ungainly and pernicious. Where have we gone wrong? Have we slipped from a Thomist ladder onto an Idealist snake? This is a possibility.

Yes, it does seem as if the idealist has an escape clause, perhaps one tailor-made for this ungainly result. After all, the idealist makes no effort to secure a connection between the cognition-horse and a putative external nag existing with *esse naturale*. The idealist finds no evidence for the existence of this external *en* horse. She settles for the item in her soul. This soul-horse is her exemplar. And she desires no mandate for intentional solutions. Her cognition-horse does not have to be *of* anything. Therefore she requires no explication of a relation holding between intentional relatum and non-intentional relatum. The idealist has no desire to propose that her cognition-horse be caused by (or resemble) some second horse. All horses (for her) are cognitions. To be is to be a cognition. She herself

is a cognition⁵¹. To emphasize that the cognition-horse *is* a horse would be completely gratuitous. The idealist would be content with a result which undermines a claim that a certain cognition is *of* a certain non-cognition. For her this cannot be right. For nothing exists save cognitions. Cognition *X* does not need to go proxy for cognition *Z*. What would be the point?

Intentional inexistence, presence in absence .. (we can lump all these directedness ploys together) .. these are non-problems for Idealist theory. Aquinas, however, is no idealist. For Aquinas the business of an *ei* item standing in for an *en* item is a problem. Hence the posit-ing of the *ei* item in the first place. Hence the retaining of the *en* item once the *ei* item has been posit-ed. His problem now is that his solution to the problem is coming apart. The *ei* horse no longer reliably goes proxy for the *en* horse. The trump card of the *ei* horse's being a horse has been trumped. That fact no longer has any power. At least this is the claim. Has the superaristotelian theorist any reply to this disabling *boutade*? I believe that he has. I contend, however, that the reply gerrymanders a return to brute stipulation.

c4: Tactics available to Thomist. Simply repeating the formula. Bruiting theoretical quietism.

What do we mean by a return to stipulation? Well, we mean that the Thomist will emphasize that it is not his *ei* horse's being a horse that guarantees foolproof connection between horse-cognitions and horse-furnitures, rather it is his *ei* horse's being an *intentional* horse. This emphasis may feed off a claim such as the next. Whilst *ei* horses *are*

⁵¹ This is perhaps the apogee of the Idealist gambit. Frege notes watershed, engineering a *reductio ad absurdum* with the yield (thus): "If we call what happens in our consciousness an idea, then we really experience only ideas, not their causes. And if the scientist wants to avoid all mere hypothesis, then he is left just with ideas; everything dissolves into ideas, even the light rays, nerve fibres and ganglion cells from which he started. So he finally undermines the foundations of his own construction. Is everything an idea? Does everything need an owner without which it could have no existence? I have considered myself as the owner of my ideas, but am I not myself an idea? It seems to me as if I were lying in a deck-chair, as if I could see the toes of a pair of polished boots, the front part of a pair of trousers, a waistcoat, buttons, parts of a jacket, in particular the sleeves, two hands, some hair of a beard, the blurred outline of a nose. Am I myself this entire complex of visual impressions, this aggregate idea? It also seems to me as if I saw a chair over there. That is an idea. I am not actually much different from the chair myself, for am I not myself just a complex of sense impressions, an idea? But where then is the owner of these ideas? How do I come to pick out one of these ideas and set it up as the owner of the rest? Why need this chosen idea be the idea I like to call 'I'? Could I not just as well choose the one that I am tempted to call a chair? Why, after all, have an owner for ideas at all? An owner would anyhow be something essentially different from ideas that were just owned; something independent, not needing any extraneous owner. If everything is idea, then there is no owner of ideas (Beaney (ed.), p. 339)".

horses they are not the sort of horses that could exist were it not for the prior and independent existence of certain mother objects, *viz. esse naturale* paddock-horses. Now such a claim would stifle idealist murmurs were it accepted. But if it were not accepted then it is hard to see where an argument could emerge to support the claim. And a return to stipulation would amount to a repetition of a familiar schema (thus):

What we cognize is the next: the *esse naturale* horse. What accrues to the soul is the next: the *esse intentionale* horse.

And thus a schema not prone to revision, not likely to be bolstered by intimate argument. The cantankerous idealist (or sceptic) would simply ask for evidence of reliable connection. Which she would not get. Which she would not get because the evidence is *always there* (and therefore it is not evidence). The model stipulates that I cognize one item and get the same item (existing in another mode of being) accrue to my soul. That I could cognize item *X* today and get item *X** accrue to my soul (instantaneously), and cognize item *X* tomorrow and get item *Y** accrue to my soul (instantaneously) is a logical impossibility. If *X** does not accrue to my soul, then I do not cognize *X*. If *Y** accrues to my soul, then I cognize *Y*. End of story. But not end of argument (because no argument). There will be no commerce between idealist (or sceptic) and Thomist. There will be no research *programme* because all the field work has been done *a priori*. The problem is, of course, that key parts of the *a priori* field work have been contested. The Thomist must argue for the independent existence of his *esse naturale* mother objects (against the idealist). Next: the Thomist must argue for the watertight connection between the mother objects (*horses, butterscotch puddings*) and the intentional items in the cognizer's soul (against the sceptic). And the Thomist has no argument. He simply repeats his schema. His foe either mocks or ignores same. Dialogue is thwarted. This is disappointing.

Is there nowhere for the Thomist to go? There are options but they are options that negate alternative solutions and then repropose primitive intentionalities. Let us be more lucid. One option is that the Thomist stick to his basic schema. He is thus to practise a sort of theoretical quietism. He justifies this quietism in the light of a corrosive and wide-ranging practise, in turn, by his foe. His foe is the radical sceptic. The Thomist hopes to exploit the negative yield of a sceptical programme in order that his doctrines be shown to be more viable. If every project fails, then my

project (it might be said) fails more elegantly than others⁵². Let us track a corrosive analysis and assess its yield. Let us then return to the superaristotelian proposal that hopes to exploit basic expressions of form's *esse* in order that a cognitive doctrine be spun.

We will track a scepticism that subjects *all* relations purporting to hold between cognitive-furnitures and candidate external objects to a withering critique. Such a critique can best be followed in dialogue form. We are to imagine a cautious and heterodox philosopher of mind (CHPOM) presenting his foe (the Sceptic) with rival theories of cognitive-semantics (some natural, some supernatural). The CHPOM begins with a modest proposal (thus):

CHPOM: Dear Sceptic, you ask me why your cognition is *of* a horse. And I explain to you that your cognition is *of* a horse because the cognitive item in your soul *resembles* a horse.

(Our Sceptic's rebuttal opens with spleen and moves past vitriol. He cares (expediently) about aboutness. Alas, he does not accept that a resemblance relation (even where one can be expected to hold - and he grants this!) would ensure respectable intentional-nonintentional connection.)

SCEPTIC: So what? Your *ei* horse's resembling the horse in the paddock establishes nothing. Why should resemblance between two items *connect* them? Better: Why should it connect them *cognitively*?

(CHPOM takes these vexations on board. He accepts the need to establish a robust connection between soul-world and paddock-world. He counterproposes a naturalistic causal tie that relates cognition-horse to paddock-horse.)

CHPOM: O Sceptic, your cognition of horse is *of* a horse because a horse *caused* your cognition.

SCEPTIC: So what? Why should a horse's having caused my cognition establish anything? I'll grant you that I appear to be cognizing Bonecrusher. I'll even grant you that Bonecrusher caused me to have cognition *P*⁵³. But so what? Why should *P* be of or about Bonecrusher as a

⁵² Perhaps better (less forlorn & more abrasive): Everyone must settle at some point for simples (objects & relations between same). Here are mine: *Z* through *J* through *P*. You, rival theorist, can criticize these; but not without replacing them with a selection of simples of your own; which selection itself will be vulnerable to attack. In short, a *tu quoque* defence of the fundamental constituents of doctrine.

⁵³ The true (and consistent) sceptic would not go this far. The sceptic opts for appearances (but does not decide *between* appearances). Granted would be the next statement: "I appear to see Bonecrusher". No inferences can be made based on this (or any other) appearance. The heritage of this reluctance to favour, this wariness of plumping for secret connections? Consider the next: " .. Sceptics began to do philosophy in order to decide among appearances and to apprehend which are true and which false, so as to become tranquil; but they came upon equipollent dispute, and being unable to decide this they suspended judgement. And when they suspended judgement, tranquillity in matters of opinion followed fortuitously (Sextus Empiricus, p. 10)". To maintain scrupulous consistency in these matters, however,

result of this causal link? Why should *P* be reliably of or about anything at all?

(The CHPOM is disturbed by the vehemence of this radical scepticism. He feels compelled to exploit an abstruse scholastic theory. This theory speaks of a formal identity holding between soul-item and substance nag.)

CHPOM: Sceptic, we are at loggerheads. I am, therefore, prepared to play my trump card. I ask you to accept that your cognition is a horse. The reason your cognition is *of* a horse is because your cognition *is* a horse. This is how your mind reaches right up to the reality of the horse in the paddock.

SCEPTIC: So what?

We get the picture. The scepticism ranges over a spectrum of cases. That it terminates here (where Mohanty's objection is born) is important. One would expect that if any relation between world items were to have muscle if it held, then it would be the identity relation. The reason we were reluctant to propose the identity relation holding in the cognitive case-study is that we feared the suggestion would be taken as absurd. *How on earth can your thought be a horse?* But we have taken a breath and granted that a thought can be a horse. And found that a thought's being a horse gave us no great theoretical pull. And this was immensely disappointing! Formal identity was supposedly our trump card. The point being that failure to generate philosophical traction *here* calls into question the whole project of proposing and doubletesting relational ties between candidate cognizer and candidate cognizable. For if the pungent relation of identity can give us no explanatory power, then what hope is there for the comparatively frail relations of cause and resemblance? Why waste time arguing that they hold when their holding does not impress our foe? She grants that relation *K* holds. She doesn't even ask for an argument to prove that *K* holds. She simply insists that *K*'s holding leaves us no better off. *K* holds. So what?⁵⁴

Sextus should only have delivered this last statement: "When the Sceptics suspended judgement, *it appeared to them that tranquillity .. followed fortuitously*".

⁵⁴ What sort of relation *might convince* the sceptic that the cognition-horse is *of* the *esse naturale* horse? There are two candidates: the 'of ___' relation, and the 'about ___' relation. We might baptize this 'of ___' relation the *genitivity* relation (GR). GR would seem to be cognate with Ross' *possessio formae alterius ut alterius* (discussed above). GR indicates belonging. When X stands in the GR relation to Y, then X is of Y. This is logically satisfying but seems an weird sort of relation. It seems the sort of relation purpose-built to salvage a philosophical conceit. Or is a fact that *all* relations have such dodgy heritage? I am indebted to Max Cresswell for pointing out the pungency of the 'of ___' relation. A similar claim could be made for the 'about ___' relation, namely that it *only* occurs to a philosopher when all candidate relations in the near vicinity fail. Would the sceptic accept that the 'of ___' relation and the 'about ___' relations are philosophically kosher? *Niemals*. She would rebut all claims to connection with the

Perhaps this scepticism comes across as bloodymindedness. It is that, of course, but in this case the bloodymindedness zeroes in on a key theoretical problem in the philosophy of mind. The superaristotelian project has generated a trump card⁵⁵. This trump card sought to resolve once and for all the problem of connecting mental item and non-mental item. Effort had been taken to argue that the trump card hold. It was accepted that the trump card held. And the problem remained. The bloodymindedness of the sceptic brings our attention to the theoretical consequence of this result. These can be inflected in *modus ponens* thus:

If cognition *P*'s being an *X* doesn't make *P* of *X*, then *P*'s being otherwise related to an *X* will not make *P* of *X*.

P's being an *X* doesn't make *P* of *X*.

P's being otherwise related to an *X* will not make *P* of *X*.

Mohanty's objection supports the antecedent. We would have to argue for the consequent to make the critique truly radical⁵⁶. How would we do so? We would have to show that the relation of identity is such that where it fails, other (necessarily frailer) relations fail. Fail to do what? Fail to secure respectable and reliable connection between cognition item and

appearance statement: "I appear to be seeing a horse". If this was augmented with anything egregiously philosophical then it would be something like the next: "Your genitivities & aboutnesses appear to be thistledown. Let this incessant promotion of candidates abate!" And there are philosophical occasions when such advice appears prudent & mature.

⁵⁵ In any philosophical community *T* there will be those who would not even consider the possibility of a horse-cognition's *being* a horse. Are our arguments against the philosophical traction of such a formal identity likely to influence those who would regard the notion as risible? Well, perhaps not directly. Trump cards will vary. The suggestion will be made that many theorists plump for something like formal identity holding between cognizer & cognizable. This *something-like-formal-identity* might take the form of an isomorphism of logical structure holding between *X* & *Y* if & when *X* cognizes *Y*. Overlooking the hardheaded tone of such parlance it will be shown that the call for such an isomorphism converges on the call for an *X*-cognition's being an *X* (or being an *X**). If this convergence can be demonstrated, then our arguments concerning relational trump cards become more telling.

⁵⁶ Let us amuse ourselves by *inflecting* the consequent (thus): *If my horse-cognition's being a horse doesn't make my horse-cognition of a horse, then my horse-cognition's being otherwise related to a horse will not make my horse-cognition of a horse.* Can we actually believe that we have made this statement? Yes, we can. Clearly, I submit, the reluctance to make such a statement derives from its plangent implausibility. I find myself, nonetheless, finding the *logical* muscle of the identity relation compelling. Implausible but compelling. I want to make my horse-cognition a horse. I want both the immediate and the mediate cognitive objects to be horses. This is the only way that I can be sure that I have horse-cognized. I am clearly insane. No mind - it is important (here) that I register all theoretical compulsions.

non-cognition item.

Objection to the link between antecedent and consequent: the relation of identity should not be thought to be more pungent or more powerful than any other relation. The objection is that scaling relations in terms of logical pungency and frailty is too general, too vague. Identity might work to secure connection Q (in one theoretical habitat) and resemblance (or cause) might work to secure connection W (in another theoretical habitat). Relations, it might be proposed, can have different job descriptions and different valencies. One ought not expect standard success rates across a spectrum of cases. That identity has failed in the Mohanty case-study has been shown. *That identity's failing in this case entails that cause and resemblance will fail* will have to be argued for. It is not a matter for stipulation.

c5: The consolation of intentionality. Defending the primitiveness of cognition. Expressing moiety in property space.

We have noted that identity's failure to secure reference in the Mohanty case-study caused disappointment. This is an important psychological detail. The superaristotelian had a good deal riding on the identity ploy. When it failed he felt let down. Identity had such prestige that its failure invited of a wide-ranging scepticism. But this psychologically interesting result does not justify us discarding alternative relations such as cause and resemblance. It merely alerts us to likely logical infringements. It encourages us to view all putative relations with a jaundiced eye. Jaundice should mark the beginning of intensified analysis. Unfortunately jaundice marks a retreat to stipulation. The Thomist reaction to a corrosive sceptical attack is to assay the negative results (as derived from various relational case-studies) and console himself with the stipulation that intentional X s exist and exist *simpliciter* as cognitions of X . We now need example of this consolation. An example is forthcoming. It is authored by John Haldane. Here it is:

If .. we take intentionality seriously, resisting attempts to reduce it to the shadow the linguistic meaning, or to the expression of a stance taken in response to behaviour, and insist that in thought the world is cognitively present .. then an appeal to the occurrence in thought of the same entities as structure the world is indicated. This in turn implies the applicability of a set of ontological distinctions: between individuals and general natures; form and actuality; and natural and intentional exemplification. For only if thought has access to the forms of things, and thereby to the things themselves, can it be true that thought is immediately directed upon the world. The

claim that this is so is that which is figuratively rendered by the idea that when a man thinks of a dog, then the man becomes formally identical with the dog (Haldane, p.164).

The dog in the mind is of the same logical structure as the dog in the kennel. The fact that the dog in the mind is a dog (figuratively⁵⁷) will, it is hoped, partially explicate *dog*-cognition. This hope ignores the Mohanty objection. That mind-dogs occur is taken as primitive. That these mind-dogs are thoughts (or sensations) is not argued for. It cannot be argued for (as we have shown). The doctrine speaks of a moiety existing in the world-items shared in cognition. It exploits this attractive possibility.

Why is this moiety attractive? Because sharing seems to be an activity which brings the cognizer closer to the cognized. Sharing what exactly? Sharing logical structure. Co-instantiating certain universals. Co-occupying zones *S* through *T* in property space *ZP*, etc. (Stories could vary as to just how this moiety is expressed.) Perhaps it is this notion of bringing two items closer together which leads us astray in our talk of cognizing. For the existence of two items (no matter how snugly juxtaposed) always asks for a relational analysis. Give us two items and we will scrap over which relation is the most plausible with which to yoke the two. A dog inside and a dog out. A soul-horse and a paddock-horse. How is the dog to exist inside? Is he to exist inside *materially* (after Empedocles⁵⁸). How is the horse inside to exist? Is he to exist therein formally (after Plato⁵⁹)? Aristotle has asked for the form of the stone to be

⁵⁷ What is it for a man to be formally *dog*-identical figuratively? Is this related to the Aristotelian conceit of being a potential dog? Unclear (perhaps equally).

⁵⁸ "Priores vero Naturales, quia considerabant res cognitae esse corporeas et materiales, posuerunt oportere res cognitae etiam in anima cognoscente materialiter esse. ... Empedocles autem, qui posuit quatuor elementa materialia et duo moventia, ex his etiam dixit animam esse constitutam. Et ita, cum res materialiter in anima ponerent, posuerunt omnem cognitionem animae materialem esse, non discernentes inter intellectum et sensum. [The earlier 'natural philosophers' .. recognizing that the things known by the soul are material or corporeal, maintained that they must necessarily exist in the soul in a material way ... Even Empedocles, who postulated four material elements and two motive principles, held that the soul is made up of these principles. They supposed that things were in the soul in a material way, they maintained as a result that all the soul's knowledge is material, and thus did not discern intellectual knowledge from sense knowledge] (ST, 1a, q.84, 1, 2)".

⁵⁹ "Plato .. credit quod forma cogniti ex necessitate sit in cognoscente eo modo quo est in cogito. Consideravit autem quod forma rei intellectae est in intellectu universaliter et immaterialiter et immobiliter: quod ex ipsa operatione intellectus apparet, qui intelligit universaliter et per modum necessitatis cuiusdam; modus enim actionis est secundum modum formae agentis. Et ideo existimavit quod oporteret res intellectas hoc modo in seipsis subsistere, scilicet immaterialiter et immobiliter [Plato .. believed the form of the thing known must necessarily be in the knower exactly as it is in the thing known. Now he recognized that the form of a thing understood is in the intellect in a universal, immaterial and unchanging way. This is apparent from the mode of operation of the intellect, which must understand in terms of universality and at least some sort of necessity; for ways of acting correspond to the form of the agent. Thus Plato concluded that the things understood must exist in themselves in this same way, namely, in an immaterial and unchanging way] (ST, q.84, 1 responsio)".

in the soul, and not the stone itself (*dA* 431b31-432a1). In this he prefers Platonic doctrine to Empedoclean. But this stone-form's being in the soul has implications for the man (whose soul it is) in so far as it is the soul by virtue of which he lives (and cognizes). "Soul is the substance, in the sense of *form*, of a natural body potentially having life (*dA* 421a20)." If the stone is in the man's soul formally, then this ought to impact on his life. It does impact: the man *cognizes* the stone. But Aristotle takes this business of form-expression more seriously (productively). Aristotle insists that the cognizer of the stone is potentially the stone, thanks to his having the form of the stone in his soul⁶⁰. We followed Aristotle in this insistence. We struggled to make sense of the claims involving potentiality. Aquinas made it clear what *he* thought was involved.

Aquinas exploited the various ways in which substance can express form. The second of these ways was the intentional way. The intentional way was noneother than the cognitive way. A cognizer cognizing expressed the form of the cognizable *intentionally*. Saint Thomas persisted, however, in treating of intentional expression of form as a relation between two world items. The relation seized upon was that of formal identity. Two world items are to be unified in the act of cognition. Two items were horses in two ways (when the pognizable was *nag*). Alas, the two item's being horses in two ways did not connect the items respectably and reliably. For the *horses-in-two-ways* items were still two. Therefore they needed watertight connection. How could they be fastened together in the act of cognition? Identity was the answer. But identity didn't work. They were identical but they weren't of or about each other. The cognition-horse was just another sort of horse. The only special thing about the cognition-horse was that its habitat was the soul. Its showing up in the soul constituted a horse-cognition. End of story. There was no more intricate analysis. It could not be made *of* the paddock-horse (other than by stipulation). And Aquinas insisted (against the Idealist) that both *ei* horse and *en* horse existed. Has Aquinas ditched the *en* horse, then the road would have been open to idealism. Retaining the *en* horse has, however, left the Thomist with a lame philosophical object. The *en* horse plays no positive role in cognitive theory. The two horse flavours cannot be reconciled; both must be taken as basic, as given. *Ei* horses just show up now and again in cognizer's souls. They are not *of* their namesakes. Thomistic theoretical quietism simply states that both horse flavours exist. This statement is estimated to ground one horse flavour to another. It does not. If we want more scrupulous analysis of the intentional flavour, I

⁶⁰ And *not* the stone itself.

proffer, we must widen our research programme. How should we best widen? By bringing the subject matter forward in time. Let us next treat of a *modern* discussion of cognition; of a model which attempts to explicate cognitive content in a new idiom, with multigrade theoretical equipments. Let us treat of John Locke.

d1: Lockean ideas introduced. A phenomenal analysis of a mental idea's receipt attempted. Stymied. Failure triumphs. Doctrine touts a basic, universal relation. Such is vetted, repaired.

Thus far we have been treating cognition as a special kind of form-transaction. What if we were to abandon the forms? John Locke proposes that we do just that. Locke asks that we dispense with forms, both as metaphysical actualizers and as guardians of cognitive-semantic content. There is certainly no place in the ontology for substantial form⁶¹. The business of *what it is to be a horse* no longer has anything to do with HORSE. Likewise the business of what it is to horse-cognize. With form absent from the world, we might anticipate, something else has to take up

⁶¹ Book 3, Chapter 6 (throughout) of the *Essay* is the best place to go for theoretical amplification of this point. Locke argues that Aristotelian forms are explanatorily redundant. What is his motivation for saying this? In short, he holds that the *real essences* of external object are necessarily imperceptible. His theory, of course, restricts our *immediate* knowledge to Lockean ideas. These ideas might be thought to match up to the qualities of the cognizeable, granted. But there is no way that we can get to the fundamental constituents of any object, *on which these sensible qualities depend*. What we do have to work with is a provisional *nominal essence*. The nominal essence is, roughly speaking, those *ideas* we annex to the object. Locke readily concedes that this *nominal essence* is elastic. In fact, one of his arguments *against* our having direct cognitive access to real essences draws on this elasticity. If the nominal essence were actually *real*, then it would be unchanging and commonly held to be the same by all cognizers [3, 6, 27]. A sympathetic discussion of Locke's strategy with respect to scholastic doctrine is found in Michael Ayers' Dawes Hicks Lecture (Ayers, 1983). I would just like to make a few remarks on this business of explanatory adequacy. In Locke's terms, of course, a *nominal essence* is all that we can hope for. The *ideas* are what we employ to win knowledge *of* the world. Even the pungent and invincible effect of a simple idea only approximates its cause. We cannot, by definition, know the intrinsic character of the causes. And *the causes* are the ultimate constituents of reality. But this fairly sceptical conclusion only makes sense in the Lockean theoretical habitat. Aristotle can argue that his cognizers *do* have access to forms as they exist in the world, because these forms are his immediate cognitive objects. The only reason our mediate cognitive objects (*horses, tables, spoons*) are not replete in the soul is because they arrive detached from their matter component. *This* story hopes to exploit the general character of cognizeables: complexity, as we have seen, is world-given. Locke's atomistic account promises more intricate and indubitable sense-results. He believes it is clear that horses and the like are not given to us in one cognitive lump. They come piecemeal and are compounded in the mind. But the psychological truth of this claim is never really tested. Both Aristotelian and Lockean accounts only generate *a priori* guarantees of validity. This does not vindicate a claim which boasts of an increase in explanatory power, for we only explain anything (here) if theory as a whole is thought plausible.

the theoretical slack. What is this something? Locke's story of *being X* invokes minute, non-sensible material items (*minima naturalia*). Locke's story of *cognizing X* exploits mental items. We will focus first of all on these two items. Thereafter we will focus on the connection between them.

Locke opens his account with the mental items. We will do the same. What are these Lockean mental items? They are *ideas*. Locke finds the existence of these ideas compelling:

Every Man being conscious to himself, That he thinks, and that which is in his Mind is employ'd about whilst thinking, being the *Ideas*, that are there, 'tis past doubt, that Men have in their Minds several Ideas, such as are those expressed by the words, *Whiteness, Hardness, Sweetness, Thinking, Motion, Man, Elephant, Army, Drunkenness*, and others .. [2, 1, 1]

But does this account reveal to us what an idea is? it tells us that we have them in our minds; that we employ them while we think; and he gives us some examples. The word 'Elephant' (thus) *expresses* a mental idea. There is an idea which is expressed by the word 'Whiteness'.⁶² At this stage of the ontology, however, we are not given much more to go on. Instead of elaborating on Being, Locke concentrates on cognizing. No ideas, no cognition. No ideas, no cognitive access to the world. The focus is upon the means by which the ideas get into the mind. For they are not there at the beginning. Famously, the mind is supposed (at birth) "to be, as we say, white Paper, void of all Characters, without any *Ideas* [*ibid*]". So the question is, of course, how the mind comes to be furnished with ideas. And Locke's empiricism is pungent and axiomatic: 1, Sense-experience conveys simple ideas into the mind. (Examples: Ideas *of Yellow, White, Heat, Cold, Soft, Hard, Bitter, Sweet.*) 2, Reflection exploits the presence in the mind of the simple ideas. The mind performs operations (abstraction, comparison, compounding, recombination, etc.) upon these simple ideas. Complex ideas result from these mind-performative operations. (Examples of complex ideas: Ideas *of Perception, Knowing, Triangle, Murder, Man, Sheep, Elephant, Turkey, Cause, Resemblance.*) I believe that we can propose something like a Lockean model for cognition. Such runs as next given:

LMC: To cognize *X* is for the idea of *X* to accrue to the mind.

Simple ideas are those ideas which properly occur in the mind. They just

⁶² Couldn't what 'Elephant' expresses be ELEPHANT, viz. superaristotelian substantial form? No. Locke has abolished such forms, as we have suggested.

show up whenever cognitive opportunity arises. I cannot fashion these simple ideas from nothing. They must be conveyed to my mind through the endorsed sense-inlets. When I pick up a piece of white paper then (given sufficient light, sufficient *attention* on my part) WHITE*⁶³ will accrue to my mind. WHITE* showing up in my mind (and me paying attention to WHITE*) indicates that I am having a white-cognition. But this analysis is too crude, I proffer. We need to attack *LMC* with three hostile queries: 1, What is it for an idea to *accrue* to a mind?; 2, What is the *object* of my cognition?; and 3, What makes my idea of *X* an idea *of X*? The first query is the least hostile of the three. Let us answer it immediately.

The senses give us the simple ideas. In the case of WHITE* the relevant sense is that of sight. As to how WHITE* is conveyed to the mind *through the senses* the notion is roughly mechanistic. Locke typically gives a hypothesis of mechanism without committing himself to it wholeheartedly:

... supposing the Sensation or *Idea* we name *Whiteness*, be produced in us by a certain number of Globules, which having a verticity about their own Centres, strike upon the *Retina* of the Eye, with a certain degree of Rotation, as well as progressive Swiftiness ... for ... I ... cannot ... conceive how Bodies without us, can any ways affect our Senses, but in the immediate contact of some insensible Particles coming from them, as in Seeing, Hearing, and Smelling ... [4, 2, 11]

In the case of the receipt into the mind of WHITE* (then), it is thought that some sort of physical impact is made upon the sense organ, and that the vehicles of *impulse* are microparticles which come from the sensible (external object). Such a tale would be compatible with the corpuscularian theory. Locke, while reluctant to arbitrate between rival accounts of microstructure, plumps for something like Boyle's corpuscularianism⁶⁴. Suffice to say that in any account we today may give, the retina and particles of light (globular or no) would probably be implicated. Regardless of the plausibility of Locke's mechanistic account, however,

⁶³ Let us stipulate that X* stands for a Lockean idea. WHITE* stands for the Lockean idea of white (or *whiteness*). The capitalization runs close to our convention for flagging an Aristotelian form. Clearly, this convention is not enough to establish theoretical continuity. However, the collusion of referential typography may inspire a philosophical analysis which throws up cognate theoretical structures within the tradition. I believe it will become clearer as we go on, *where* Locke differs from Aristotle and *why* it is plain that, in important respects, he remains influenced by the philosophical manipulandum that is FORM.

⁶⁴ A sample of Locke's version of this follows: "... insensible corpuscles, are the active parts of Matter, and the great Instruments of Nature, on which depend not only all secondary qualities but most of their natural Operation [4, 3, 25]".

we choose (here) to focus on the logic of the story. Grant him that globules flit from sensible to eye. Grant him impulse and impact. What does the business of WHITE* getting to the mind win the cognitive theorist? What does WHITE* tell me (as white-cognizer) about the world?

And so we come to hostile query 2. What is the *object* of my cognition? The query has two answers, as it turns out. For the immediate object of my cognition is none other than WHITE*. That the ideas are the objects of cognition seems obvious to Locke. And he concedes that this fact requires mental ideas to be reliably hooked up to non-mental items:⁶⁵

'Tis evident, the Mind knows not Things immediately, but only by the intervention of the *Ideas* it has of them. Our *knowledge* therefore is *real*, only so far as there is a conformity between our *Ideas* and the reality of Things. But what shall here be the Criterion? How shall the Mind, when it perceives nothing but its own *Ideas*, know that they agree with Things themselves? [4, 4, 3]

This passage provides us with a number of important clues with respect to queries 2 and 3.

The ideas are the immediate objects of cognition. But these ideas do not exhaust reality. There is a reality of *Things* beyond these mental ideas. In the case of white-cognition there is something which WHITE* must conform to if our white-cognition is to be real. We have, therefore, two objects. The direct object is the idea itself: WHITE*. The indirect object is a real thing (itself)⁶⁶. Is this non-mental counterpart of WHITE* a single, discrete item (like WHITE* itself)? This is unclear (perhaps unknowable). But there seems no violent presumption *against* it being single and discrete. Let us then (provisionally) identify the non-mental counterpart of WHITE*. Henceforth we shall refer to it as *white**⁶⁷. WHITE* is supposed to give us knowledge of *white**. Having WHITE* in the mind is to *know* this *white**. But, clearly, it is to know this *white** in a limited way. It is WHITE*, after all, which we have in the mind; which we can inspect; which we *experience*. What evidence do we have that WHITE*

⁶⁵ There is some question here about *favouring* hypostases. The two object relational story is problematic, of course. It requires a tertiary element, namely a *relation*. If we treat of the cognitive operation as act, content and object (as some might encourage us to do), then we also require that three *parts* be theoretically ostended. Locke clearly believes that ideas are mental *items*. That they are items, however, does not make their liquefaction implausible.

⁶⁶ "External, material things [are] the Objects of sensation [2, 1, 4]"

⁶⁷ Yes, just as we flagged superaristotelian substance *x* to any counterpart form *X*. Again I ask that we not run too far with the parallels just yet. The proposal is not that *white** behave as substance or accident (or anything); merely that it is the non-mental counterpart to WHITE*. *white** plays mother object, if you will, WHITE* surrogate. We must be careful not to depend too much on *white** being an independent existent. We have not claimed anything like this. And we had best not. It is the theoretical role served by *white** which is our primary concern.

goes proxy for some other thing? Forget about needing a *Criterion*, what prompts us to think we need anything other than WHITE*? Such questions answer to a blunt sceptical challenge. They seem difficult to evade in this case. Locke's account of cognition concedes that we know nothing but ideas. The results of any knowledge project will be, therefore, more ideas⁶⁸. And we will never arrive at knowledge of some class of non-mental items, because it is only the possession of special mental items that constitutes knowing. Locke is in a bind. How can he include globules and corpuscles (which are presumably non-mental) in his inventory of world items when his epistemology forbids our knowing them (our knowing even that they exist)? Can he propose that there is some necessary logical connection between his ideas and his non-ideas? Does WHITE* have something as part of its content that shows that it has a non-mental origin? Does the WHITE*-experience have a special character which indicates that it derives from *white**? Or does WHITE* just show up in the mind from time to time? If WHITE* does just *show up*, then Locke's conviction that it must reliably conform to something other than WHITE* seems unjustified (and redundant). In short, what we want from Locke is some sort of proof of an external world (a world that consists of *a**, *b**, *c**, ...). And it seems that this proof must be derived from the existence (thought beyond doubt) and the intrinsic character of the Lockean ideas. The character of *white** must somehow be shown through WHITE*. Do we get such a proof? Unclear. Let us concentrate for now on some passages which deal with simple ideas (like WHITE*). If we are to find out more about these ideas, then we must scrutinize examples of them.

Locke argues that such ideas as WHITE* accrue to the mind with such force and independent character that they do, in fact, *represent* certain non-mental items. A couple of key passages can now be vetted:

... simple Ideas .. the mind .. can by no means make to it self, must necessarily be the product of Things operating on the Mind in a natural way, and producing therein those Perceptions which by the Wisdom and Will of our Maker they are

⁶⁸ "Why does Locke think we can only know the contents of our own minds? Well, he takes it as obvious that we know things like the nature of whiteness .. and would presumably think it a silly question to ask for an *analysis* of what it is to know the nature of an idea. He takes it as obvious that we know how things *appear* to us. But he also knows, given the 'new' scientific world view which finds its highest expression in the work of Newton, that that is *not* how things are in the external world. The external world (presumably) consists of particles moving around in empty space. So in describing the world as it appears to be then all we can be doing is describing the contents of our own minds. Locke's claim in Book IV of the *Essay* that we know every little about the external world might seem surprising when we recall how impressed he was with the new natural philosophy of his time. But on reflection it is not hard to see how pessimism about natural philosophy might arise. If all we can directly know is the contents of our own mind then any scientific discovery is just more of the same [Cresswell, *unpublished ms*]."

ordained and adapted to. From whence it follows, that *simple Ideas are not fictions* of our Fancies, but the natural and regular production of Things without us, really operating upon us; and so carry with them all the conformity which is intended; or which our state requires: For they represent to us Things under those appearances which they are fitted to produce in us .. [4, 4, 4]

... our Senses, conversant about particular special Objects, do convey into the Mind, several distinct Perceptions of things, according to those various ways, wherein those Objects do affect them .. [2, 1, 3]

The simple ideas are products. Products of: *Things* (without us). This business of *producing* simple ideas is natural and regular. The products (effects) represent those objects which affect them according to the various ways by which they *do* affect them. OK, so the story becomes clearer. Locke's employment of terms such as *product* and *effect* reveal that he is opting for a causal relation holding between external object and mental idea. WHITE* should therefore be understood to be the effect of some cause. And a candidate cause is at hand. The cause of WHITE* would seem to be *white**. Now we have a list of properties to assign to this *white**: it is (provisionally stipulated to be) single and discrete; it has causal powers (indeed it stands on the left-hand side of the causal relation *R* to WHITE*). *white*RWHITE** (thus) flags a cognition (a *white*-cognition*)⁶⁹. *white*RWHITE** seems to be a (more) formal translation of our Lockean model of cognition. So (inflected to yield the WHITE* case-study) here it is:

LMC: To cognize *white** is for the idea of *white** to accrue to the mind.

And the idea of *white** is noneother than WHITE*.

Updated *LMC*: To cognize *white** is for WHITE* to accrue to the mind.

Metaphysical advance looms.

We now know something about a Lockean simple idea. We also know that this simple idea stands in a causal relation to a Lockean cause (a

⁶⁹ But also, of course, a white-cognition. And, as it is WHITE* that is, most properly, the *immediate* cognitive object, the sentence flags a WHITE*-cognition. For the time being we will not discriminate between these readings of the formal cognitive sentence *white*RWHITE**. In due course it will become pressing as to how we are to *read* this sentence; how we are to break it down into its cognitive and non-cognitive parts.

Lockean non-mental object of cognition). At least this is the claim: *white** causes WHITE*. The claim is tabled. But does the table claim justify anything like the next?:

WHITE* *qua white**-effect tells me (as *white**-cognizer) something about *white**

On what we've been given so far, I don't think that it does. The claim that there is a causal connection between *white** and WHITE* seems to ask for some sort of field-trial. So I set up a cognitive opportunity. I turn my head to the side and look at a piece of white paper. So far so good. Has WHITE* accrued to my mind as a result of this directed attention? According to the model WHITE* should be in my mind when I *see* the white paper⁷⁰. Is WHITE* in my mind? I don't know. I don't know quite what I am looking for. The provisional claim is that WHITE* is discrete. The blunt Lockean claim is that WHITE* is irresistible. But whatever WHITE* is it doesn't seem particularly *noticeable*. I was paying attention, but I simply didn't pick WHITE* up as it come into the mind. That being the case, it would be pointless for the cognitive theorist to ask that I scrutinize WHITE* and look for signs of *white** in WHITE*. The phenomenal investigation should quite reasonably be aborted. But let us practice charity. Surely there is *something* that occurs when we look at a piece of white paper. What is it? In particular, what is the *white* part, as it were, of the *white paper* cognition? Is it fruitless to comb the mind for this *white part*? Can we really find nothing of what Locke calls the idea of *White* (*Whiteness*) in the mind? Well, there *is* a special character to the white paper cognition. Most notably, it is that character which distinguishes a *white paper* cognition from, for example, an *orange paper* cognition. The problem is that we struggle to analyse this distinguishing character, other than to say that the one cognition is of a piece of *white* paper and the other is of a piece of *orange* paper. Which analysis seems facile. Surely we do not need a philosopher to tell us this story. Who would dispute it? Who would think it worthwhile to retell? Just as white is not orange, a white-cognition is not an orange-cognition. Does it help to

⁷⁰ Better: WHITE* being salient in my mind *is* my seeing of the *white* of white paper. If I don't white-see, then WHITE* isn't salient in my mind. To ask whether WHITE* is salient in my mind is to ask whether I am white-seeing. The *antiempirical* nature of this model will become more and more plangent as the analysis proceeds. A studied elenchus is here entertained in the hope that the logical structure of the *explication* of an X-episode will surface. Bear with us as we pose questions of theory which a sophisticated student of theory would never pose. Never think worthwhile posing. Why not? Because the posing is exegetically naive. Which result (once more) shows our research programme to be non-exegetical. Which is correct.

understand that a white-cognition is not an orange-cognition because WHITE* is non-identical to ORANGE*? It doesn't help, it simply restates the facts. At this level of description, I submit, the Lockean account is nothing more than a labelling of phenomenon⁷¹. I cannot inspect WHITE* anymore than I can inspect ORANGE*. WHITE* and ORANGE* do not seem to be in my mind with anything like the pungency and saliency that Locke suggests they are. I simply cannot *find* the likes of WHITE* and ORANGE. I don't even know what sorts of things these simple ideas are supposed to be. I accept that white is not orange. I accept that my white-cognitions are non-identical to my orange-cognitions. The problem is that I cannot exploit the intrinsic characters of WHITE* and ORANGE* to justify this acceptance of non-identity. I must refer the proposed non-identity of the ideas to the obvious non-identity of the *experiences*. And there is no requirement that the non-identity of the white-experience and the orange-experience be explained by an appeal to the existence and non-identity of two discrete mental items. There is no requirement that the non-identity be involved with items which flag a cognitive difference (a difference in cognitive content). Indeed there is nothing save linguistic convention which drives me to say that the two experiences are cognitive at all. Any promise of an elaboration of the field-trials seems abortive (likewise), because the business of white not being orange can be agreed up *a priori*. The suggestion is that the Lockean metaphysical translation of the white-cognition is compatible with ordinary experience only because the translation is merely a relabelling of phenomenon. And this is disappointing *for us*. *Our project* demanded something more from the model. WHITE* tells us something about *white**, granted. ORANGE* tells us something that WHITE* doesn't. But we still have unanswered questions: 1, What does WHITE* tell us about *white** (beyond a surface report)? And 2, *How* does it tell us what it tells us? The claim is that *white** causes WHITE*. This claim, however, stands in need of justification. Given that we only have direct access to WHITE* (after the model), the intrinsic character of WHITE* must tell us *A*, that it has a cause; and *B*, that its cause has such and such properties. Unfortunately,

⁷¹ Is this conclusion a negative criticism of Locke's model? Not necessarily. It may well be that Locke takes his appearance-facts, as it were, as too obvious to justify more intimate investigation. He may feel that an intensified phenomenological examination is unlikely to benefit *his* project. Which demonstrates (perchance) that *his* project is non-identical to *ours*. Which we should already know. Our task to not to replicate doctrinal manoeuvres and then allow analysis to dwindle in gross primitivities. We wish to manufacture a non-circular model of cognition. Various models belonging to the empiricist tradition are pilfered along the way. Given this mercenary methodology it is possible for us to adapt the skeleton of a Lockean model, applying it thereafter to chores it was not authorized to complete. Whether, in the end, our labelling ploys are any sharper than Aristotle's or Locke's remains to be seen.

we are stuck with the claim and a model which *we feel* both invites and defies phenomenal scrutiny. The model informs us that we only obtain cognitive access to *white** through WHITE*. And we have been unable to obtain any worthwhile knowledge with respect to WHITE*. The account dissatisfies us. Let us table our dissatisfaction (and continue with the analysis). How does analysis proceed?

I propose that we accept that Locke's claim that each and every simple idea has a cause cannot be argued for with the Lockean model. Let us accept that he *believes* that the causal relation is basic and universal. WHITE* will have a cause and ORANGE* will have a cause and HOT* will have a cause. We don't have to accept that this is the case, but we will accept that Locke believes it to be the case. Without this concession, I proffer, the whole story disintegrates. Granting Locke his cause-effect relation, we will see where it takes us. It takes us, of course, to the business of an effect telling us something about its cause. Clearly, however, it's a waste of time staying at the phenomenal level (when scrutinizing WHITE*). This is the opportunity to focus on metaphysical analysis. Our interrogation will assess the theoretical consistency of the Lockean model. What is our first metaphysical question? This: What sort of character must the Lockean simple ideas have in order for them to reveal some of the traits of their causes?

d2: What is WHITE that it can tell us about white*? Non-blank cognitive effects. Idea represents, as we have seen, non-idea. Qualities vie with powers for cognitive function. Snowballs and clocks: essences.*

The claim is that WHITE* is a natural product of *white**. WHITE* represents to us *white** under those appearances which *white** is fitted to produce in us. This particular formulation is slippery. What are the *appearances* which *white** produces in us? I pick up the piece of white paper. I white-see. WHITE* accrues to my mind. WHITE* ensures that *white** appears white. That *white** causes WHITE* to accrue to my mind (and not ORANGE*, say, or HOT*) secures a phenomenal flavour for my experience. WHITE* makes *white** look white to me. And *white** makes WHITE*. Which rendering speaks of constipation⁷². Are we saying *anything* when we say that *white** produces WHITE* and WHITE* makes *white** look white to me? Yes and no. The first part of the formulation

⁷² Slippery constipation?

simply restates that a causal relation holds between *white** and WHITE*. The second part of the formulation is where constipation threatens:

WHITE* makes *white** look white to me

Note here that causal powers are being attributed to WHITE*. WHITE* now has a distinct job to do. It must secure the *white**-appearances (somehow). This is why the rendering seems awkward. WHITE* must answer its cause by making me (indirectly) cognize its cause in a particular way. When I white-cognize I am the effect of WHITE*. WHITE* causes me to white-cognize. And, as we have said, *white** causes WHITE*. Is there anything mysterious about this causal chain? *A* causes *B* causes *C* doesn't look terribly occult. And it's not occult until we get to the final state description. It is my white-cognition which the whole chain is set up to explicate. The problem is that I don't know what this white-cognition is. If the causal chain is to have any theoretical efficacy, then WHITE* must really cause *white** to look white to me. And this business of something *looking white to me* is just too vague to qualify as a terminal effect. Is this *looking white to me* the white-cognition, or is it a supplementary (epiphenomenal) feature of the white-cognition. WHITE* must affect me in a very particular way if *it* is to be a successful cause. WHITE* must reciprocate its *white**-effect in order to produce a white-cognition (and not, say, an orange-cognition). And we are not really in a position to say that it is able to do this or not. How can we make sense of the logical structure of the cognitive model? By putting the logical constituents of this model on the rack. We must test various *relata* and relations to ensure that they are compatible.

Now we know that WHITE* must have the causal power to make *white** look white to me. But let us note that the causal power of WHITE* must be non-identical to the causal power of *white**. If we allow the causal relation *R* to be identical as it stands (respectively) between *white** and WHITE* and between WHITE* and the white-cognition, then we allow that WHITE* cognize *white**. And this is absurd. The immediate cognitive *object* cannot be allowed to cognize the mediate cognitive object⁷³. We can avoid pathology by stipulating that *R* differs as it stands

⁷³ Unless, of course, we liquefy the immediate cognitive object by exposing it as the white-cognition - or, better still, as the white-cognizer. But this liquefaction is completely unjustified here. I believe it is clear that we best treat WHITE* as a mental *item* (and not as a cognitive event, or episode). Even if we favoured liquefaction, there would still be grave problems in demarcating a role for WHITE* as vehicle of content. This difficulty will be discussed at length. The difficulty spills over to the business of stipulating that it is WHITE* which has white-content (for the cognition) and not *white**. Recall that *white** only survives as a provisional hypostatic item. It may well dissolve, taking content - if it is

between the different relata. Can we see why this is necessary? I believe that we can as soon as we point out that WHITE* lacks the intrinsic character to exhibit independent causal power. WHITE* simply is an effect of *white** (and is nothing more). This being so, WHITE* is unable to contribute anything to the causal relation which ties it to the white-cognition. It simply passes the cause on (from *white**). Which is problematic, because *white** cannot stand to WHITE* as cognitive cause. How can the account be remedied? I submit that something needs to be superadded to WHITE*. The superaddition need comprise something non-mental (to adhere to the strict empirical slant of the project). What is this *something* which we propose to superadd?

We propose to flag two causal relations in the cognitive sentence *white**RWHITE*Rwhite-cognition. The left-hand relation we christen *Regular*, the right-hand relation *Super*. *Regular* is that causal power which *white** has to produce WHITE*. *Super* is that causal power which WHITE* has to make *white** look white in the white-cognition. Properly speaking, *Regular* + *Super* work in tandem to promote a white-cognitive episode. *Regular* is non-identical to *Super*. *Regular* would seem to have something to do with the powers of certain microparticles (themselves remote and insensible). *Super*, meanwhile, secures cognitive-phenomenal flavour. But this description is too florid. What is it that *Super* actually secures? *Super* secures white-content for WHITE* (orange-content for ORANGE*). And what is white-content? White-content is that part of the cognition which specifies the white-cognition. Are we saying anything at all here? *Super* specifies white. But this white (content) is either identical to WHITE* or (if non-identical) provides us with yet another constituent of the episode. Fortunately, this is what we want. *Super* is the relation which stands between WHITE* and the white-cognition. We demand that the relation be non-identical to WHITE*. We are happy with this result. WHITE* + *Super* secures a white appearance; ORANGE* + *Super* an orange appearance. We seem to be claiming (here) that WHITE* and ORANGE* are content-identical. Better (perhaps): we claim that neither WHITE* nor ORANGE* have content (by themselves). Is this not a dangerous proposal? Not dangerous, rather absurd. For if WHITE* and ORANGE* are content-identical (having zero content), and *Super* decides which appearance the ideas will produce, then either WHITE* and

ORANGE* will produce identical appearances, or *Super* will arbitrarily secure different phenomenal results. And both options, I suggest, are implausible. It's no good having *Super* combine with the blank effects in different ways. (And it's certainly no good securing identical results across a range of ideas.) If *Super* is to combine with the simple ideas to produce discrete and various yields then we must give each and every simple idea some content. The simple ideas cannot combine with *Super* to generate plausible cognitions if we leave them with zero content. WHITE* must have some content. And ORANGE* (and HOT* ...) must have some content. Intrinsic content. Let us baptize the content of WHITE* *Wonton*. And the content of ORANGE* *Orangutan*. Clearly, *Wonton* must be non-identical to *Orangutan*. WHITE*-content *Wonton* inheres in WHITE*. Likewise ORANGE*-content *Orangutan*. *white** causes WHITE* to accrue to my mind (exploiting *Regular*). (WHITE* + *Wonton*) + *Super* cause *white** to look white to me (in the cognition). This (then) is the updated formula. There are two problems here. We have to ask two questions of *Wonton*: 1, Where does it come from?; 2, How does it express itself in the mind?

The first question seems to fly in the face of our stipulation (above) that *Wonton* is intrinsic to WHITE*. But this is a false estimate of the stipulation. *Wonton* is intrinsic to WHITE*. But *Wonton* is part of WHITE* and WHITE* is caused by *white**. So *white** does cause *Wonton* (insofar as it causes WHITE*). Which fact pushes the question back and twists it into something like the next: Does *Wonton* come from *white**? Yes⁷⁴. But if *Wonton* comes from *white** why can I not access *Wonton* directly (rather than go through WHITE*)? Locke stipulates that we have no direct cognitive access to the likes of *white** and *orange**. What is the reason for this stipulation? Wouldn't I be better off dispensing with the mediating idea? Two points need to be made here. Firstly, for *white** to have *Wonton* is for *white** to be available for a white-cognition. There is no reason for that availability to be direct, but (equally) there is no reason for it *not* to be direct. Secondly, if *white** can be permitted to have and exhibit *Wonton* (*naturally*, as it were), then WHITE* is redundant. WHITE* is featureless without *Wonton*. WHITE* seems to be no more than a vehicle for *this* content? But why does *Wonton* need *another* vehicle? Is there any reason for us to forbid that the cognizer access *Wonton* and *Orangutan* directly in (respectively) *white** and *orange**?

One of the problems with dealing with the likes of *Wonton* and *Orangutan* is that we don't quite know what they are. What is the part of

⁷⁴ For where else could it come from?

WHITE* that reveals the content of *white**? What *is* this content? Is this content, properly speaking, of *white**? Our argument has reached the point where *white** HAS *Wonton* and no presumption stands against *Wonton* being accessed there and then. But there are alternative strategies. *white** might HAVE *Wonton* without being able to express it cognitively⁷⁵. Perhaps this is what Locke suspects is the case⁷⁶. But what might prevent *white** from content-expressing, as it were? It will help to parse the white-inflection of our formal sentence again:

*white**RegularWHITE*Superwhite-cognition

Now, it is content *Wonton* (inherent in WHITE*) which makes the white-cognizer take the appearances of *white** to be white rather than, say, orange. If WHITE* *per impossibile* showed up in the mind with content *Orangutan* it would take the appearances to be orange. The job descriptions seem quite tidy here: WHITE* is the vehicle for *Wonton* (and no more than that *vehicle*); *Wonton* decides between the appearances, as it were (end of story); and *white** passes on *Wonton* to WHITE* (and not to ORANGE*). But I still might ask for WHITE* to be expunged. This yearning to omit WHITE* from the formal sentence must be put to rest. I propose that we turn our attention to a formal sentence which boasts a constituent cause *more primitive* than *white**. Our analysandum will be the inflection of a cognitive sentence which hosts a *primary quality*. First we require an *aperçu* into this plangent Lockean division of qualities. Here it is:

Qualities thus considered in Bodies are, First [the primary Qualities] such as are utterly inseparable from the Body .. such as .. it constantly keeps .. such as Sense constantly finds in every particle of Matter, which has bulk enough to be perceived, and the Mind finds inseparable from every particle of Matter .. [2, 8, 9]

⁷⁵ What do I mean when I say that a Lockean idea, or indeed a Lockean simple cause, *may* content-express? No more than this. That content may be *available* in a cognition. I am not suggesting that a simple cause, say, act as content-centrifuge, throwing the likes of *Wonton* and *Orangutan* out into the cognitive world. Nor am I saying that there is any presumption against this boisterous enterprise. The notion of *content availability* may well implicate an attentive (seeking) *mind*. In which case any content-holder (perchance *white**) will be expected to be less active in content-transaction.

⁷⁶ Then he would seem to agree with the superaristotelians. *white** could have *Wonton* NATURALLY. WHITE*, meanwhile, could have *Wonton* INTENTIONALLY. While it would be unfair to put these expressions in Locke's mouth - *Wonton* is, after all, *our* discovery and not his - we can see that the logical structure of the cognitive problem survives the introduction of microparticles and globules. Standard and non-standard predications for the likes of *white* and *orange* (*however* we label these - universals, tropes, accidental forms or secondary qualities or no) must be made. Mother objects (substances and/ or hypothesized causal clusters - say, *white**) cannot have and/ or express content *in the same way* as mental surrogates (*ei* forms or Lockean ideas). The same problem crops up again and again. It becomes more malevolent at each telling.

2ndly, such *Qualities*, which in truth are nothing in the Objects themselves, but Powers to produce various Sensations in us by their *primary Qualities*, i.e. by the Bulk, Figure, Texture, and Motion of their insensible part, as Colours, Sounds, Tastes, etc. These I call *secondary Qualities* [2, 8, 10]

Thus *white** is not *white*, but it might well be *round* (if it were, say, the snowball which produced the idea in the mind)⁷⁷. In fact, it is convenient to exploit the snowball example. Let us say that *part* of the snowball produces the simple idea ROUND*⁷⁸. Here is the formal sentence:

*round** Regular ROUND* Superround-cognition

Doctrine permits us to say that *round** is round. Allow that we identify round-content as *Rarotonga*. The question is this. Is it permitted that *round** cognitively express *Rarotonga*? Now, we seem to be asking for some sort of logical consonance between the next two possibilities:

F1: *round** is round

F2: *round** *Rarotonga*-expresses

Is the danger that we conflate these two? The temptation here is to say *round**'s being round has something to do with *round** having and expressing *Rarotonga*. Is it *Rarotonga* which makes *round** round? The relationship seems to be that between a content and an ontological ground. And the relationship seems, *prima facie*, back to front. For is it not *round**'s being (round) which determines *Rarotonga*? Yes, but we have argued that if *round** has the causal power to produce (ROUND* + *Rarotonga*) then *round** must HAVE *Rarotonga* in the first place. And we accept this conclusion. But we don't need to accept that *Rarotonga* determines that *round** be round. What then can we say makes *round** round?⁷⁹ We might speculate as to ultimate structures of *a**, *b**, *c**, ...

⁷⁷ Providing the snowball was round, naturally. And we couldn't identify the simple cause as *snowball**, because *snowball** should, with rigor and theoretical expertise, reduce to an amalgam of simple causes. An amalgam? Would this suggest some ontological nuclear force, as it were, holding the simples together. No. As we shall see, postulations as to natural ties in the likes of *snowball** are unjustified.

⁷⁸ Which *part*? The *shape* part.

⁷⁹ And what (then) can we say *doesn't make white** white (*orange** orange)? Any story here, I suggest, would have to propose that *white** be further analysed into the likes of *round** and *square** and so on. But we would not allow that we terminate in a simple cause which exemplified a secondary quality. Such would indicate that reductive analysis need go on. There is nothing in Locke's world which *is* white or orange or sweet (etc.) save the cognition itself.

Indeed, Locke offers consolation:

.. it [is] one thing to perceive, and know the *Idea* of White or Black, and quite another to examine what kind of particles they must be, and how ranged in the Superficies, to make any Object appear White or Black [2, 8, 2]

To some extent he offers clues as to the *logical* structure of his fundamental objects. Consider the next given passages:

.. [the] real Constitution of Substances, upon which depends [the] *nominal Essence*, and all the Properties of that Sort .. [eg.] .. *Gold* .. a Body yellow, of a certain weight, malleable, fusible, and fixed. But the *real Essence* is the constitution of all the insensible parts of that Body, on which those Qualities, and all the other Properties of *Gold* depend [3, 6, 2]

We [cannot] rank, and sort Things, and consequently .. denominate them by their *real Essences*, because we know them not. Our faculties carry us no farther towards the knowledge and distinction of Substances, than a collection of those sensible *Ideas*, which we observe in them, which however made with the greatest diligence and exactness, we are capable of, yet is more remote from the true *internal Constitution*, from which these Qualities flow, than, as I said, a Countryman's *Idea* is from the inward contrivance of that famous Clock at *Strasburg*, whereof he only sees the outward Figure and Motions [3, 6, 9]

The *real Essence* of *round** cannot be known. It can be inferred (to this extent); that it causes ROUND* to accrue to the mind. ROUND* depends upon the constitution of all the insensible parts of *round**. This is not to imply that *round** is the core of a material body. Not the core, the nucleus, nor the surface of, say, the snowball. What is it if not to imply this? It is tempting to say that for Locke the ultimate constituents of the world are the likes of *round** and *square** and *triangle**. It is no coincidence that we select such causes as instantiate primary qualities. The claim is that *round** is round and *square** is square and *triangle** is triangular. That *round** is round secures for us some objective knowledge of these ultimate building blocks. Clearly, however, the primary quality resemblance thesis cannot be known to be the case⁸⁰. The thesis exploits an inference. *The ideas* are still all we have to work with. Nonetheless, I want (here) to test a thesis which might wish to identify the likes of

⁸⁰ The thesis has provoked considerable academic debate. Jacovides (October 1999) and Heyd (1994) are a good place to start. The resemblance thesis - if taken literally - provides the theoretical muscle to impose roundness and triangularity on our simple ideas of (respectively) *round* and *triangle*. The resemblance gambit is interesting to us for this reason. Locke's willingness to run with it suggests that he wants his most primitive ideas to be what they are ideas of. Thus our idea of a triangle is a triangle. But how can an idea be triangular? Clearly, I would suggest, in some nonstandard way.

*round** and *square** and *triangle** with the basic constituents of a world. Can these items perform the theoretical work that is expected of them? Could they successfully *underwrite* a later cognitive story?

d3: Ultimate Lockean causes. Early-modern logical atomism. The structure of cognitive experience reflects ontological grounds. Bulldozers and algorithms.

Imagine a world where *round**, *square** and *triangle** serve as base constituents. Everything in a world *J* derives from these three ontological grounds. Can we get this to work? What items must show up in *J* for *J* to be a Lockean world? For a start we need some ideas. Candidates exist, viz. ROUND*, SQUARE* and TRIANGLE*. Simple. But already we have smuggled some non-ideas into *J*, most notably the primary qualities round, square and triangular. As these inhere in the base causes they are *qualities* (and not ideas). Secondly, we have smuggled in a casual relation (*Regular*) standing between *x** and *X**. Granted. What else do we need? It is clear that ROUND* and the like need a host (a receptacle). Any inventory of *J* must include a mind. Would one mind suffice. No. In order to a Lockean world *J* must have more than one mind. Well, how are these minds to be constituted? Simple again. They must be made up of *round**, *square** and *triangle**. Does this make sense? I don't think that it does. *round** is an essential component of a round-cognition. *That* is its metaphysical role. It causes ROUND* to mind-accrue. Surely it cannot *comprise* the mind to which it causes the idea to accrue? This seems correct. *round** is forbidden from causing mind⁸¹. And if *round** can only cause ROUND* (*x** X*) then we cannot expect that *round** comprise a mind⁸². For then we postulate some relation other than *Regular*. Which postulation we

⁸¹ Is it not fallacious to switch (here) from comprising to causing? No, for *ex hypothesi* the simple causes contribute to the world through their causal power. Otherwise they are inert. To get them to comprise anything, therefore, we must exploit their only egregious world-feature. There is no presumption, however, against the simple causes attaching to various world-furnitures in different ways. *Regular* is a basic and universal cause, to give one example. We may (very soon, in fact) propose other causal relations which are more specialized. Of course, this is done *a priori* and *ad hoc* to boot. The only causal relation we are forbidden from attaching to *x** (and the like) is the egregiously cognitive causal relation (*Super*). And this *forbidding* is what we are working towards justifying. There is no end in sight.

⁸² Could *round**, say, be a Lockean mind? *round** could still function as the simple cause of ROUND*. But ROUND* would accrue to *round**. Might Locke remain agnostic about such a costly repertoire? He might. Indeed he might find it logically *coherent*. I am still not convinced that it makes sense. And it is not the limited nature of the repertoire that makes me uneasy, rather the logic of simple cause *housing* mental effect.

encourage. We postulate that the *Comprise* relation standing (respectively) between *round**, *square**, *triangle** and mind secure the ontological flavour of each mind. This being the case each and every mind would be identical. Each identical mind would then be prone to receive various combinations of the three simple ideas. And these simple ideas (thanks to the *Comprise* relation) would constitute the minds. Such an exchange would be incestuous, but not necessarily pathological. *J* would be a world in which both the objects of cognition and the faculties of cognition shared origin. It might be said that all *J* lacks is variety. In which case we simply extend and crank up the simple effects (both ideas and minds). We start where Locke starts: *with the ideas* (occurrent to the minds). In a refreshed and variegated Lockean world *J** we plump for an idea (*any* idea). If the idea is CIRCLE*, then we stipulate (provisionally) that CIRCLE* has single, discrete cause. We baptize this cause *circle**. The same procedure applies to any new idea *X**. Our algorithm will always generate kindred cause *x**. The algorithm just *runs* (underwritten by *Regular*). (We cannot justify it, take it apart. It is *not* experimental at all.) The only problem is accounting for the selectivity of the *x**-finding algorithm. Selectivity? Yes, for Locke *doesn't* claim that ELEPHANT* is caused by *elephant** (BULLDOZER* by *bulldozer**). In such cases he would certainly expect a reductive analysis. But when it comes to ROUND* the *x**-finding algorithm comes into its own. It generates a simple cause very easily indeed. *How do know when the algorithm should be applied?* This is the key question. Any reply, I proffer, will smack of *a priori* rumination. This is perhaps clearest when we try to decide between the rights of WHITE* and ROUND* to secure simple cause. Phenomenological considerations will not persuade me to say that *round** exists and *white** does not. *Qua* cognitive theorist I am (likewise) bereft of theoretical resources to discriminate between WHITE* and ROUND*. Neither has any intrinsic characters that points to a cause at all. *A fortiori* I find it impossible to say that ROUND* draws a *simple* cause and WHITE* does not. Doctrine resorts to stipulation at this level of non-experience. Now, magnify the predicament. Pick up a stone. The stone is round, yellow and heavy. Stone-cognize. You have STONE* in your mind. Are you able to *reduce* this STONE* to its component causes? Does it have *parts* - a *round* part, a *yellow* part, a *heavy* part? Are these parts *causes*? Do these parts reduce to causal simples? Or does STONE* itself seem to have a pungent, simple cause? Theory actually rebukes such myriad logical investigations. (Recall that the stone you picked up was a theoretical object, not a lapidary manipulandum. We wished for compatible *metaphysical* results here, rather than disparate and granular phenomenal quotients.) I cannot get at the effects in any manageable way.

Nothing encourages me to affirm *theoretical* experience. What is being affirmed? Denied? The logical structure of the Lockean model is transparent up to a point. And then the objects and relations involved become diffuse, they refuse to touch reality. I propose that we examine one last feature of the model, a feature which is seriously implicated in cognition, namely *representation*.

d4: WHITE represents white* (X* x*). Regular is demarcated from Basic, a more general and cognitively unsympathetic cause. A nervous system makes an appearance. There exist objective and subjective terminal facts.*

Recall that we had hoped to further characterize our representamina (the likes of *white** and *round**). It was anticipated that X* might reveal something about x*. Clearly, this has not been the case. We know by definition that WHITE* is a simple effect of *white**, but that *white** should not be taken as a primitive simple. Such knowledge is *a priori*. The project of further examining the causes through their effects is abandoned. *Regular*, it is claimed, does all the work. Both cause and effect seem to be blank. The effects have content, but this content seems to resist further analysis. We can say that *Wonton* secures a white-cognition and that *Orangutan* secures an orange-cognition. Beyond that we cannot go. But there is another feature of the *white*RegularWHITE*Superwhite*-cognition sentence. And this feature is *representation*. Now, *Regular* seems to embrace both cause and representation. Cause is *representational* (in this mind-terminal context). But there is danger in this conflation. Let us (next) examine it.

We have (long ago) prohibited X* standing to x* as cognitive-effect. It is absurd that X* be allowed to cognize x* (WHITE* *white**). But we seem to have momentarily forgotten this prohibition. If *Regular* is now flagged as a relation of *representation*, then it seems to have acquired much the same power as *Super*. Is this the case? Fortunately, it is not the case. *Super* is the cognitive relation. *Regular* is purposefully flagged as non-cognitive. *Regular* flags a relation of representation, granted. But representation is non-identical to cognition. A can represent B without cognizing B. A watercolour can represent Huka Falls without the watercolour Huka Falls-cognizing⁸³. Granted. But it is important to make

⁸³ It can even do it without the watercolourist Huka Falls-cognizing.

another point clear. If we are to agree that *Regular* flags a causal-representational relation, then we have two options. *Option 1*: demarcate *Regular* from some more general, non-representational relation, say, *Basic*, which handles all the world's non-representational collisions (so to speak). *Basic* is that relation which flags all cause-effect episodes apart from the representational episodes. When two billiard balls collide, the first-moving ball exploits *Basic* to impact some change upon the second ball. *Option 2*: specify that *Regular* exhibit representational effects only when these effects terminate in a mental domain. Specifying not only the effect but the domain in which this effect terminates suggests that representation is a three-part relation. And I think we can see this. *A* represents *B* to *C* (where *C* must be a mind, a mental domain). The watercolour represents Huka Falls to some mind. If the third relatum in our three-part relation of representation is a non-mental domain, then *Regular* is not satisfied (and representation is aborted). The formal sentence $ABCRegular^{84}$ can be inflected to generate a non-representation by specifying that *C* is non-mental. Do we then have a working model? Problems linger with the model. It will pay to properly evaluate the heuristic advantage of a *representational cause*. I give the formula thus: X^* represents x^* by virtue of being its effect. A simple case can be inflected:

WHITE* represents *white** by virtue of being its effect

And the cognate formal sentence:

*white**RegularWHITE*Superwhite-cognition

Regular must secure the representational effect WHITE*. And it must stop there. It is forbidden that *Regular* spill over into WHITE* (here) and into *Super*. For *Regular* and *Super* are incompatible. Representation is not cognition. Granted (again). So *Regular* secures WHITE* and stops there. But it is difficult to see how *Regular* can stop there and still obtain representational effect. To illustrate this we table and compare what we might call our axioms of representation:

I: Cause is representational

⁸⁴ We will discuss the exact *shape* of this sentence shortly, *ie.* where *Regular* squeezes into the sentence when properly parsed.

2: X^* represents x^* by virtue of being its effect

3: representation is a three-part relation: X^* represents x^* to (and for) a mind

4: representation is not cognition

Our third axiom seems to rebuke Regular's stopping at WHITE*. WHITE* must represent *white** to (and for) a mind. Let us further specify this. Regular QUA representational relation must make sure WHITE* shows up in the mind as a cognition. (Locke would certainly concede that if WHITE* is not in the mind then it is nothing: it *flags* a cognition.) If the representation does not terminate in a cognition, then it is not a representation. But we cannot allow that it terminate in a cognition, because then Regular would spill over into Super. And this is pathological. Regular cannot be a cognitive relation. Unfortunately, Regular cannot secure representational effect without spilling over into the cognitive relation Super. Our axioms of representation are incompatible. WHITE* cannot, it seems, represent *white**. This is an awkward result. Perhaps we are forced to revisit Option 1 and demarcate Regular from Basic. And if we did this we should have representational cause (Regular), cognitive cause (Super) and Basic. But I think Option 1 is exorbitant. It violates the strict empiricist slant. Locke would not be happy with three *a priori* causal relations. We ourselves are reluctant to multiply our causes. But what choice do we have? Let us briefly examine some alternatives.

Perhaps we could assign a much greater role to Super. It might be possible to allow that Regular stand between *white** and WHITE* (to secure Wonton) without becoming involved in WHITE* being taken by the mind to be a representation. (WHITE* + Wonton) would be the effect of *white**. And Super would take care of the representational side of WHITE* *qua white**-effect. But this is simply to say that Regular is non-representational. And to insist that Super represents WHITE* to the mind. Which result vitiates WHITE*'s *representing white**. This is too strong. WHITE* represents *white**, but WHITE* *qua white**-effect cannot be taken as a *white**-representation without Super doing some work⁸⁵. Properly speaking, WHITE* is not a representation *until* it is a white-cognition. This is a dark saying. It encourages us to say that it is the *white-*

⁸⁵ Equally, *white** is not *carried into* the representation, as it were, without Regular doing some work. It seems both are needed. The slippery bit is specifying *exact* job descriptions for the pair. And the same business of demarcating roles for each relation applies to the cognitive episode. For we must keep repeating one of our axioms of representation, *viz.*, that cognition is non-identical to representation.

cognition which is the representation of *white**. Which is just another way of saying that WHITE* is the white-cognition (rather than an image or an intentional *object*). Alas, this reading of the formal sentence *white*RegularWHITE*Superwhite-cognition* creates difficulties of its own. Firstly, if we conflate WHITE* and the white-cognition, then we engineer the demise of *Super*. The relation loses its relata and cannot hold. If *Super* vanishes then its workload seems to fall back on *Regular*. But *Regular* cannot be a cognitive relation (and it can secure only blank representation). These results are rebarbative. *Super* cannot vanish. WHITE* and the white-cognition, we plea, must remain non-identical. Perhaps there is a way to engineer this. There is, but it is by no means straightforward.

Allow that, for the purposes of tailor-made analysis, we cut the *white* formal sentence in half:

WHITE**Superwhite-cognition*

Now, in our original reading of this WHITE* was taken to be an object of some sort (*viz.*, a mental *item*), and *white-cognition* was taken as the flavour of an experience. That WHITE* had *Wonton* as content (and not, say, *Orangutan*) secured white-flavour for the phenomenal experience. And while this reading of *white-cognition* was frail, I believe that it is attractive to read the right-hand relatum of *Super* as a phenomenological fact (and not to collapse it into mental *constituent*). Better: let us treat *white-cognition* as a particular mental state *qua* experience, and treat WHITE* as an objective description of this particular mental state. In contemporary parlance we might say that *white-cognition* answers to a privileged report on a white-experience, whereas WHITE* is best analysed as a discrete perturbation of the brain (C-fibres firing, dopamine levels stable, etc.) Thus:

WHITE* (objective state description)

white-cognition (subjective state description)

Here we seem to map different aspects of the same mental state. The same thing is described from two different points of view⁸⁶. Exploiting this identity in difference it might be possible to keep our two relata and reinstate *Super*. OK, we grant this (provisionally). It is now necessary to

⁸⁶ Which method strikes us as *Aristotelian*.

vet the efficacy of the modified relation between *Super* and its terms.

Super, if we recall, was required to take care of the representational side of WHITE* *qua* white*-effect. But what does this mean? Well, *A* represents *B* to (or for) *C* is the structure of any representational episode. *A* (here) is WHITE*; *B* white*, and *C* (the) white-cognition. And in modern parlance? Straightforward:

A brain state represents *white** to a *white-cognition*

I suggest the following improvement:

A brain state represents *white** in a *white-cognition*

Regular ties the brain state to the cause (*white**). *Super* ties the brain state to the subjective experience (the white-cognition). The substitution of *to* (or *for*) with *in* serves us well. It makes more limpid the notion that the three-part relation of representation can be collapsed into a two-part relation if that is desired. Which illustrates that the brain state and the cognition are equivalent, but are given under different aspects (objective:subjective). This seems plausible. The sentence does seem to embrace both the physical facts and the phenomenological facts. But it does make representation a queer sort of relation. Part of the representation invokes a pungent, invincible cause-effect relation⁸⁷. *Regular* (under appropriate conditions) produces WHITE*. This sense-product has content *Wonton*. At which point *Super* takes over. And *Super* doesn't stand between two different items, or events, but rather between an objective and a subjective description of the same thing. No, this is misleading. The relation does not stand between the description, but between the facts which these descriptions *answer*. Between the objective facts and the subjective facts. Which facts can be predicated of the Lockean simple idea WHITE*. Well, the relation might be a queer one, but it is not obviously pathological. The analysis suggests, however, that representation and cognition are going to be hard to prise apart. Although we can say (correctly) that representation is a three-part relation and cognition is not, the three-part relation quite naturally collapses into a two part relation (beneath a particular descriptive level). We can allow, therefore, that cognition *contains* a representational element (thereby avoiding a situation where watercolours *cognize* waterfalls and the like).

⁸⁷ Remember that with WHITE* (and with ORANGE* and ROUND* .. all the *simple* ideas), short of blocking the sense-inlets, the mind is utterly passive, it plays no role other than that of receptacle.

To white-cognize is to have WHITE represent *white** in the cognition. In this sense representation *is* cognition. But we must prevent *Super* spilling (back) over into *Regular*. *Regular* cannot assume any part of the cognitive workload. Clearly, theory requires such housekeeping as prophylaxis. *Regular* must do so much, and no more. Likewise *Super*. It seems, however, that we have an internally consistent model. Is this assessment too rosy. Yes, I think it is.

Plainly, I submit, the Lockean cognitive-representational model is enigmatic. The only component of the model I *qua* cognizer am permitted to *have* is the Lockean idea. But when we try to cash out, say, WHITE*, as discrete phenomenal yield, the results are disappointing. My white-cognition is tohu-bohu. Inspection seems a pipe dream. WHITE* resists precise analysis. And it does not send me elsewhere. All along the theoretical chain there exist elements which defy fully-fledged assessment. *white** is more or less blackboxed. *Regular* is not argued for, rather assumed. *Super* is clearly a special relation, with a hefty workload. Its intrinsic nature, however, is beyond appraisal. In short, we do not have a lot to go on when vetting Lockean cognitive solutions. The model discourages field-trials. At the coalface of representation-cognition stands the *idea*. It is self-effacing. It is fissile and almost impossible to characterize. What's more, it seems to do too much work. Our results must express our dissatisfaction with this Lockean fulcrum. The empiricist research programme, we submit, requires a more rigorous theoretical treatment. Consistency is not enough. I propose that we examine a twentieth century attempt to produce a non-circular theoretical description of cognition. This attempt carries the empiricist project to its logical conclusion. Paradoxically, this conclusion seems to destroy *experience* altogether.

eI: Sense-datum theory. Broad, Moore, Russell, et al. Immediate and mediate cognitive objects. Something is elliptical, something else is brown. Something else (entirely) is round.

Hypostatic primitives garnered thus far have included intentional forms and Lockean mental items. These items have been underwritten with resemblance relations and cognitive causes. We have repeatedly criticized the workload of candidate theoretical components. Much of the truly cognitive-representational operation seems to get smuggled into a simple transaction (whether it be formal or causal). The smuggling seems to be rife. Label tends to masquerade as analysans. Our next study will be on

the look out for such masquerades.

Sense-datum theory conveniently follows the empiricist slant⁸⁸. It exploits cognition in order to fund ontological investigations. *What we immediately cognize wins the privilege of existence*. But what is it that we immediately cognize? This is the key question. Let us introduce sense-datum theory by tackling an answer to it.

Imagine that you espy a dollar coin on the table in front of you. What shape is the dollar coin that you cognize? There seem to be two answers to this question. Firstly: the coin is round. Secondly (perchance): from this angle the coin looks elliptical, but it is actually round. Sense-datum theory tries to account for the facts of appearance; facts like *from this angle the coin looks elliptical*. Theory kicks off with putative solution to abnormal cognitive field-results. The solutions to the abnormal cases then groom hypostatic replies to all simple cognitions. Charles Dunbar Broad provides us with a sober and fairly comprehensive analysis of the sense-datum theory (thus):

We may generalise this theory of sensible appearance as follows: Whenever I truly judge that *x* appears to me to have the sensible quality *q*, what happens is that I am directly aware of a certain object *y*, which (a) really does have the quality *q*, and (b) stands in some peculiarly intimate relation, yet to be determined, to *x* [Broad (1952), p. 239].

In the case of the dollar coin I reported an elliptical shape, and was reluctant to attribute this elliptical shape to the dollar coin, which I took to be round⁸⁹. Nonetheless the schema accounts for the result. The dollar coin is the mediate cognitive object *x*. It is round. But there is another object, the *immediate* object *y*. And *y* is not round, but elliptical. That *y* is elliptical explains why I took *x* to be elliptical. The reason is actually a

⁸⁸ Cognitive experiences atomize (yes) and cognitive objects become infinitesimal in this reasonably contemporary research programme. Nevertheless, it *begins* with sense-experience. In some versions, as will be seen, the contaminated nature of sense-experience funds a radical proposal that hopes to eliminate experience from a purely formal project. But this proposal flags an extreme (Carnapian) thesis. Most sense-datum theorists trust in the pregnant and indubitable yield of basic cognitive field-episodes. This yield provides the raw materials for myriad logical investigations.

⁸⁹ Of course, there may be other reports. I might report that the dollar coin looks shiny or dull, old or new, pock-marked or pristine, etc. The hope would be that all reports that are *not* simple reports of sensation can be reduced to reports of such simples. The same hope would apply to the next report. "That dollar coin appears to be a dollar coin." It will not be theoretically kosher to allow *sensa* which exemplify such complex features. They must be reduced to simples. We can compare this with our version of the superaristotelian analysis. In that case forms such as COIN were permitted to transfer from an external substance (*coin*) to a soul. Complexity arrives with the cognition. With the sense-datum theorist (as with Locke) complexity is built up *in* the cognition. Everything - mental and non-mental - is a particular. Nothing physical is intrinsically complex. Forms - if they are anywhere - *are* (for these latter-day empiricists) in the mind. Nominalism presides over cognitive transactions.

conjunctive one, *viz.* I took *x* to be elliptical because *y* is elliptical and because *x* is related to *y* peculiarly and intimately. Well, what is *y*? It is a *sensum*⁹⁰. *And the sensum actually has the characteristics which are given in the cognitive experience*⁹¹. This applies across the board. A normal cognition, involving a true judgement, would be accounted for by the same schema. To show this let us fiddle with the case we have. I look at the dollar coin. This time I look down on the coin from directly above. It looks round. The *sensum* is round. Likewise the coin. Here is the analysis:

I truly judge that the dollar coin appears to me to be round. What is happening is that I am directly aware of a round sensum which (a) really is round, and (b) stands in some peculiarly intimate relation, yet to be determined, to the dollar coin.

Broad has, in effect, quarantined external objects - dollar coins and the like - and highlighted *sensa*. *Sensa* are what we directly cognize. And they are what they seem to be. The proposed solution is elegant and attractive. I want, however, to subject the *sensa* solution to theoretical antisepsis. Just as we zeroed in on superaristotelian forms and Lockean ideas, so I want to closely scrutinize the favourite objects of this contemporary strain of empiricism. First up we will examine the argument that *sensa* are needed to account for anomalous facts in the abnormal case-studies. Is it really necessary to reify the appearances⁹²? Can I not be allowed to make mistakes at the coalface of simple cognition? Does there have to be

⁹⁰ Broad favours the appellation "*sensum*", others "*sense-datum*". Theo Redpath attributes the coining of the term "*sense-datum*" to the Russell of *The Problems of Philosophy* (Redpath, p. 587). Others find that, whilst the term *gained currency* with Moore and Russell (around 1910), it had been employed well before this date (in James' *Principles of Psychology* in particular) (Mautner (ed.) p. 518). Nothing much rides on the favouritism of terms, however, nor their authorship. We follow Broad's usage simply because he is the first theorist with whom we deal. There is, however, controversy regarding what these *sensa* actually *are*. We promise to discuss the ontology of *sensa* at some length, when we are prepared for the discussion.

⁹¹ A perplexity will arise surrounding a *sensum's multiple-exemplification*. It will soon be clear that a *sensum* is most consistently thought of as a *single-propriety* object. Of course, then it becomes problematic whether anything can exist *as a single propriety*. The possibility of perplexity is flagged here and now. Please bear in the mind the initial elegance of theory is such that it disguises ontological problems. These only surface when we subject the hypostasized appearances to strenuous analysis. *Only then* does it become hard to believe that we let the *sensum* into the repertoire in the first place.

⁹² This is Frank Jackson's phrase. Consider the next as an example of setting up *the grounding* of appearances in a linguistically-slanted philosophical habitat: "One way of understanding .. statements [about our visual experience], the way of [Sense Datum Theory], is to take substantives like 'image', 'look', 'appearance', 'the look of' seriously, as actually designating something, generically named a (visual) *sense-datum*. This may properly be described as reifying appearances (as it commonly is) but it is not inventing them .. (Jackson, p. 105)".

something which actually has the character I mistakenly ascribe to something else? To tackle these queries I suggest we revisit the dollar coin case-study. Here is the argument for the existence of *sensa*:

1, *When I cognize a coin from a certain angle the coin appears to be elliptical.*

2, *The coin is round.*

3, *There is a sensum which is directly cognized and this sensum is elliptical.*

Clearly, the argument hopes to exploit the principle of non-contradiction. There is something which I cognize. This something cannot be both round and not-round (elliptical). Therefore there are two things, not one. But am I forced to concede this? Can I not plead for an appearance which is less a *thing* than a way of taking (mistaking) the coin (which is *one*)? Unclear. After all, the posit of the *sensum* hopes to explain why the coin (which is one, yes, but which is also round) is *mistaken* as elliptical. So it's unhelpful simply to repeat the fact of mistaking⁹³. And Broad himself is well aware that ontological commitments loom. The elliptical *sensum* is an existent, granted. But it is not an existent in the same way that the coin (a *penny* in Broad's example) is an existent:

A round penny and an elliptical visual *sensum* are not real in precisely the same sense. But both are real in the most general sense that a complete inventory of the universe must mention the one as the other. No doubt the kind of reality which is ascribed to appearance will vary with the particular type of theory as to the nature of sensible appearance that we adopt .. [b]ut *all* possible theories have to admit the reality, in some sense, of appearances; and therefore it is no objection to any particular theory that it ascribes a sort of reality to appearances [*ibid*, p. 243]

I think this takes the sting out of the proposed hypostasis of *an elliptical appearance*. If we grant that the report "That coin looks elliptical" has a

⁹³ Winston Barnes asks, in effect, why it is not plausible for an *x* to appear *F* and be *G* [Swartz ed. p. 163]. There is no contradiction in something being one way and appearing another. The question is why the appearance has *this particular* character. *Sensum* theory provides one answer. I does help to divvy up the cognizing verbs here, however. We shouldn't really say that we *cognize* the coin and also *cognize* the *sensum*. It is important to remind ourselves that we have a mediate and an immediate object. But there is no verb in English to capture the gist of this transitivity between the coin-cognizer and the elliptical *sensum*. And we can't say that we are *appeared to* by the *sensum*, because this misleads as well. The *sensum* is *given* to the cognizer. That I am given the *sensum* accounts for the appearance, it doesn't replace it.

truthmaker, then it seems natural to expect that the truthmaker will be an appearance. And however we take this appearance, we seem obliged to attribute some being to it. It, therefore, joins the world of realia. The question then becomes where does it fit in⁹⁴. Is a sensum a thing, part of a thing, part of a mind? What is a sensum?

e2: Properties are annexed to the sensum. Mongrel, bolshy field-results. Being round is thought problematic.

Two properties can be attributed *a priori* to the sensum (to *any* sensum). 1: The sensum is an immediate cognitive-object. 2: The sensum has the characteristic that the mediate object appears to have. Both properties are interesting. Property 1 indicates clearly that the sensum is the quintessential cognitive *object*. Even more so than the Lockean simple idea the sensum is the perfect *given*; by definition it is there, available to inspect. In which case, we might subject it to the same field-trial as we subjected WHITE*. I look at the dollar coin on the table. Can I identify the sensum, *the elliptical sensum*? Is the elliptical appearance discriminable? I lean back. Peer at the coin. Am I given the ellipse? At first I am not. And then I lift the coin up, fiddle with it, place it on a book, it is now a little higher than it was, the light falls more plainly upon it. I have adjusted the angle at which I see it; it presents itself to me. And there is something. The coin does appear elliptical. It is a dull, reluctant appearance, however, not fleeting so much as hostile, resistant to measure. But there is something .. Just as there was *something* when we tried to pick out WHITE* in the *white paper* cognition. Neither result, however, is limpid and fully discriminate. I cannot emancipate the elliptical datum from the contamination of a background, the rival *givens*, the alternative stimuli. But do I have enough to say that the elliptical sensum is the immediate cognitive-object *qua* coin *qua* shape? Clearly, this question is muddleheaded. It cannot be that elliptical sensum vies with some other sensum to give me the coin's shape first. If I am given the elliptical sensum, then the coin appears elliptical. *The sensum exhausts the appearance (uses it up)*. If I have another appearance, then there is

⁹⁴ Russell adumbrates an ontology of *sensa* in typically limpid fashion (thus): "Let us give the name of 'sense-data' to the things that are immediately known in sensation: such things as colours, sounds, smells, hardnesses, roughnesses, and so on. We shall give the name 'sensation' to the experience of being immediately aware of these things. Thus, when we see a colour, we have a sensation of the colour, but the colour itself is a sense-datum, not a sensation (Russell (1976), p. 4)".

another sensum. And this is an important point⁹⁵. Can there be appearances which have multiple features? Can we have, for example, a dull, reluctant, elliptical appearance? Unclear. Let us make the case less idiomatic, less bolshy. Could we have an appearance which is red and elliptical? Or would we have to break this down into two appearances: one red, one elliptical? The point is this. Could I refute sense-datum theory by identifying an appearance which was multiple-featured? I think I could⁹⁶. But I feel that candidate phenomenological samples would be too crude to count as positive results here. How could I prove *a posteriori* that any appearance *Z* were really multiple-featured? And yet, perversely, all *Z*s are probably mongrel results. It might be the case that I can never pick out the elliptical sensum. There is just too much going on, even in the most limpid cognitive domain. So have we produced a *de facto* refutation of sense-datum theory? No. And I think that this shows that sense-datum theory is empirically self-effacing. It both invites and staunches field-results. The work is done *a priori*. Which result seems preposterous. We have claimed that the sensum was the epitome of a direct cognitive object. That by definition it is *there* (given). And now we claim that it is not really available for inspection. Surely this poisons the logical-empiricist project⁹⁷. Not necessarily. I proffer that the guardians of sense-data have an antidote to this theoretical poison.

Let the theorist stick to his guns. The sensum is given in cognitive experience. What's more each sensum is simple and completely exhausts each discrete appearance. The trouble is that we lack the phenomenological acuity to discriminate each sensum. Nonetheless the discrete item *is* there (and has just the right content). The sensum cannot be cashed out in a simple protocognitive experience. But it is available to the cognizer at some deeper level. The simple event does happen (and does ground the whole experience in a discrete chunk of reality). Is this reply

⁹⁵ G.E.Moore: "What *is* this thing - the sense datum - of which I am immediately aware? ... [it] seems doubtful whether it *can* have any other infima quality except the one it is given as having ... (Moore (1962), p. 49)".

⁹⁶ This is a hunch. What justifies this hunch? I think that I might refute the theory by identifying an appearance that was red and circular. Why? One might complain that it is difficult to postulate an experience of something that, for example, had colour but no shape. But I feel that the opposite is the case here. The sensum is clearly not a physical object. That will become *abundantly* clear. It is a logical object. And it doesn't make sense to me that this logical object can house, as it were, more than the single appearance-property which it was built to house. I believe that the logical considerations driving this hunch are made more manifest in the pages ahead. Treat the hunch, therefore, as a promissory note.

⁹⁷ Bertrand Russell's work with sense-data is the most perspicuous case here. His adoption of *sensa* can best be understood in an antisceptical context. Here, at last, is an item which is truly indubitable. This sensum serves as bedrock for our entire logical project. All knowledge *points back* to it. For an examination of Russell's relationship to sense-data - which objects he eventually turns his back on - see Pears (1967, *passim*).

our antidote? Yes. It is unsatisfactory.

The antidote does violence to the notion of a *given* sensum. To say that the simple sensum is given but non-discriminable verges on an admission that what is given is *not* immediately cognizeable. That the immediate object of cognition is not what it appears to be. Which violates doctrine. The whole point of identifying a sensum is to ground later knowledge claims in direct cognitive experience. This is the job of, for example, the elliptical sensum. But we have suggested that in experience we might never know this, might never recognize it to be the case⁹⁸. And thus we lose our antiseptical trump: our indubitandum. The bluff of empiricism is called. If the elliptical sensum is never given, then we have to make claims that it *must* be given (perchance at a deeper level). But these claims cannot be established empirically. We cannot shew it, even to ourselves. Certainty never arrives in sensation (cognition). Grant that the sensum *is* elliptical. The problem is verifying this in the experience. Impossible. Our findings still seem preposterous⁹⁹. Let them stand, however. And conclude thereby that the sense-datum project is at root antiempirical. The key manoeuvres are *a priori*. In which case our conceptual apparatus need to be (further) cleansed¹⁰⁰.

⁹⁸ Forget about being able to say something about it, to formulate an exact description of the experience. For the time being we just want the exact experience. The exact experience given, as it were, in experience. For how else could it be given?

⁹⁹ Preposterous, yes, but maybe compatible with an austere version of positivism which adumbrates an *elimination of experience*. Oswald Hanfling has a nice discussion of this outrageous proposal (Hanfling (1981a), p. 77). The idea seems to be that gross sense reports should be neutered (nullified). Work should be concentrated instead on analysing formal verdicts, stylized surface reports. The project wants to tautologize induction. Doubts as to the existence of material objects, and so forth, are sidelined as pseudoquestions. Clearly, there is a good deal of bluff in this approach. The two modes of speech (*material* and *formal*) are not interchangeable. Here is an example of a dialogue in Carnapian *material* mode: "*Question*: What objects are the elements of given, direct experience? *First answer*: The elements that are directly given are the simplest sensations and feelings .. (Hanfling (ed.) (1981b), p.154)". Whatever grade of answer is annexed to this question is must contain a non-linguistic component. The most likely non-linguistic candidate component would be that exploited in an *ostensive* routine. And such an ostension could not be reduced to or translated into a *formal* report. Friedrich Waismann's comments on this matter can serve as fingerpost instances of positivistic sobriety: "To say that I am pointing is not to point .. (Waismann (1977), p. 126)". Synthetic statements (Schlick and Quine's *observation* statements) belong to a special class, surely privileged in any *empirical* science.

¹⁰⁰ What do we mean when we say that concepts must be cleansed because key theoretical manoeuvres are *a priori*? What sort of *cleansing* are we promising? This is tricky. After all, I cannot expect theory to reshape my simple cognitions. If my cognitions are of nature *S* (molecular, say, indiscriminable) and theory suggests that my cognitions are of nature *T* (atomic, say, discriminable), then theory is wrong. The suggestion here is that theory finds experience not merely self-effacing, but irrelevant. Logic *invades* experience at this point. The desideratum is perhaps a model that *guarantees* a consistent field-result. Compatibility is now the criterion of truth: more properly, a *coherence* theory of truth replaces a correspondence theory. The price of internal theoretical compatibility is high. We seem to quarantine objectivity. There exists no class of necessary synthetic statements. No incorrigible datum. Every predicate is contained in *its* subject. We have lost our subject matter *in* the subject. Bizarre conclusions loom.

Allow that we restart the conceptual analysis with the second property we annexed to the sensum (*any* sensum). Property 2? Yes: *the sensum actually has the characteristic which the mediate object appears to have*. But let us examine the logical structure of this. Question: Is it necessary that the sensum and the mediate object identically exemplify any characteristic *F*, which *ex hypothesi* the both have? Answer: Yes. Then there is a problem. To vet the problem we again fiddle with the dollar coin.

The dollar coin is round. I look at the dollar coin from directly above. The sensum is round. The dollar coin and the sensum, we have stipulated, must *be* round in the same way. If they are not round in the same way, then we have not explained the appearance. Is this clear? The trick was to get the appearance in the abnormal case-studies (round coins *appearing* elliptical, etc.) to actually have the property that they appeared to have. And this co-exemplification gambit was generalized to incorporate both normal and abnormal field-results. But if the sensum has *F* in one way, and the mediate object has *F* in another way, then the gambit is a hoax. We might as well say that the sensum has *F* and the mediate object has *G*. We might as well say that the sensum is round *intentionally* and the coin is round *naturally*. (Which, of course, is pretty much what Aquinas did say¹⁰¹. And, if we recall, *that* solution became vulnerable to the Mohanty objection.) So the question is (to reiterate): Can the coin and the sensum *be* round in the same way? This is problematic. After all, the coin has roundness as a property. The coin's roundness is one property among many. But the sensum doesn't seem to qualify as a property-holder at all. It really is *just* a property. There is nothing which holds roundness to the sensum. The sensum, as we have said, is exhausted by its roundness. Roundness, in this case, just seems to float in property space¹⁰². Well, doesn't the appearance have *roundness*? Isn't the sensum *round*? Yes, of

¹⁰¹ The difference being that in our reading of Aquinas the transaction involved substantial forms like COIN and not simply accidents like ELLIPTICAL. The *esse intentionale* coin would perchance drag its accidents in with it as it arrived at the soul. It certainly was *not* the case, in our interpretation of doctrine, that COIN was made complex after psychic treatment of all the accidental features.

¹⁰² Will it not be easier to think of an appearance which has two or three properties *floating*, as we put it, in property space? I do not see why this should be the case at all. If *blue* floats with *round*, and some coagulation is vaunted, then we need an account of the coagulation. Why are *blue* and *round* floating with each other, if there exists no third thing which holds *blue* and *round* together in a complex? Multiply your floating properties *ad indefinitum*. The onus still falls on theorist to establish objective unity. Aristotle has a solution to this problem. He puts forward the solution of substance. Modern empiricists are reluctant to grant such ready-made complexity. Nonetheless, the theoretical need for coagulative property-ties remains. Remains unanswered. If we are told that a sensum is a novel object which can host multiple properties but without them being *conjoined* - even in something so nebulous as a compresence relation - in any real way, then we have to ask for a more satisfying account. In a sense Aristotelian substance-accident conjunctions have become the paradigm for our property-thinking. We find it difficult to imagine a property with this property being *had*. It is not inconceivable that this is a limiting way of assaying the problem.

course it is. Being round is its job description. It thereby satisfies a theoretical function. But it doesn't ring true to say that the sensum *has* roundness, certainly not in the same way that the coin has it. It actually rings false to say that the sensum is an *it*. The coin and the sensum seem to be quite different sorts of objects: the first is a complex (perchance a substance) of properties and relations; the second is a weird entity, cast adrift, proposed to fill a theoretical role, and then left (incomplete)¹⁰³. Which result tells us that the roundness of the coin is non-identical to the roundness of the sensum? Indeed; it tells us that the sensum, being what it is, cannot *be* round in the same way in which the mediate object is round. Therefore the connection between the *round* of the sensum and the *round* of the coin is non-respectable¹⁰⁴. Theorist must settle for something like the next claim:

I grant you that the coin is round(1) and that the appearance is round(2), nonetheless the fact that they are both round is important. This fact, I claim, secures the appearance, grounds the phenomenon.

And we simply ask why this should be the case. *What gives round(1) an affinity to round(2) that, say, square(1) lacks?* There can be no convincing reply. My sensum's being *round(2)* gives me no traction. We have shown that the property that is the sensum sends us nowhere else. We are not justified in saying that it shares a property with anything else. All we are justified in saying is this. That the sensum is round. But this is not a report *about* anything. It is scarcely even a report about the sensum itself. Which result is rebarbative. I suggest we table it and return our attention to the proposed logical structure of the cognition. It seems, however, that our next question verges on the comic.

¹⁰³ The point could be made that *the coin* is just as much a theoretical object (a Quinean prehistorical *posit*, say) as the sensum, albeit a less ephemeral and nugatory one. And we could *grant* this to be the case. Our requirement that the two objects (theoretical or not) *have* roundness in the same way still holds.

¹⁰⁴ Prejudices in favour of the either the actual or the virtual might come into play here. Why do I plump for *round(1)*, say, over *round(2)* (if this is what I do)? I cannot hope to justify any prejudice. I am *ex hypothesi* given a *round* in the appearance. I might choose to *grant* this ontological priority. I say, therefore, that the sensum is, *per prius*, round. And then I vet other claims to roundness. Where, in fact, all I am doing is, by definition, vetting other (separate) *sensa*. If I then report that another sensum is *round*, then it is difficult to see what sort of roundness I am going to concede it to have. It can't be the same roundness as the not-yet-hypothesized coin, because then one appearance will be an appearance *of* another appearance. I might be forced to say that all round *sensa* are *round(1)* *sensa*. But this stipulation would be based of purely logical considerations. It would scarcely qualify as a scientific claim.

e3: Quarantining non-appearances. Grading cognitive episodes. The world is exhausted in the sensum.

*Where does the mediate object stand in relation to the sensum? Can we even ask this (given preliminary results)? Well, Broad has plumped for an undetermined, peculiarly intimate relation standing between sensum and mediate object. Let us leave the relation undetermined for the time being. And just baptize the relation *Krakatoa*. *Krakatoa* ties the sensum to the mediate object. (We don't know how it does this. Our intuitions suggest that it is impossible.) The sensum has been examined to some degree (and found to be a vestige, an incomplete object). Let us turn our attention to the item of the left-hand side of *Krakatoa*: the mediate object. Here is the left-hand part of the model (in which *mo* flags a mediate object):*

moKrakatoasensum

What is this mediate object? Broad is agnostic (rightly so). He is quite happy that his mediate object have no inferable properties, even happy for it not to exist. Consider the next:

... it is false psychologically to say that we, in fact, reach our perceptual judgements about the existence and properties of physical objects by a process of inference from our *sensa* and their properties. Further it is false logically to suppose that the *existence* of a physical world in general could be inferred from the existence of our *sensa*, or from anything that we know about their intrinsic properties or their mutual relations. I suppose that the existence of *sensa* is a necessary condition, but it is certainly not a sufficient condition, of my belief in the existence of the physical world. If there were no sensible appearances to me, I suppose that I should not judge there to be any physical reality. But, on the other hand, there is nothing in my *sensa* to force me logically to the conclusion that there must be something beyond them, having the constitutive properties of physical objects [*ibid*, pp. 267-8]

Sanguine conclusion. Theorist has truly quarantined his non-appearances. *Sensa* exhaust appearances and carry no reference to non-appearances. There is nothing in a *sensum* to suggest that it is a simple effect of a fundamental cause. Nothing to suggest that it resembles something beyond it. Nothing at all save its content (necessarily *simple*, *particular*). Once we have said that the elliptical *sensum* is elliptical we have exhausted its predicates. The brown *sensum* *is* brown. The round *sensum* *is* round. In which case we dispense with ... physical objects?

Dispensing with the mediate object (say, *the round coin*) creates a

problem for Broad's formula. Recall that he plumped for a peculiar and intimate relation standing between the appearance (the elliptical sensum) and that to which we mistakenly attributed the elliptical appearance, namely *the round coin*. We baptized this relation *Krakatoa*. Well, *Krakatoa* is certainly *peculiar* if we dispense with the coin. But it seems to be less than intimate. Correct. The relation must be reinstated. Options are available to us here.

Let us say that there are two grades of cognitive episode in the world. One grade comprises common sense transactions between cognizers and mediate objects such as *round coins*. Such transaction can host mistakes. But there is a cognitive grade which rebukes error. This is the philosophically acute grade. Here the cognizer never takes an appearance to be an appearance of some mediate object. She always cognizes (immediately) a sensum. She can never be wrong about the characteristic property of this immediate object. Therefore: she can happily dispense with mediate objects. Properly speaking then, the model reads off as follows:

What happens when I cognize a sensum which is F is just that, I cognize an F sensum.

Now the question is this. Can I develop a science of sensa (given that sensa are all I have to work with)? Let us examine this possibility.

The hope might be that I can compare my sensa, correlate them, flag items in property space. But is this a radical misconstrual of what is going on? Yes. By definition I exhaust my sensum when I have it (and pick it out as *F* when it is *F* - it cannot be otherwise). But this is not an investigation in any reasonable sense of the word. It's not as if I could be wrong about the sensum. There are no hidden properties to find, or to highlight. Once I've marked a sensum I must simply move on. Move on to what? Another sensum, of course¹⁰⁵. Are we going to allow sensum number two to be *F* or not-*F*? We are. Well, let us stipulate that the first sensum was *white*, whilst the second sensum is *square*. Now, my phenomenal field is exceedingly flat. My experiences differ only because they must. Actual results are so meagre that they seem not to pertain to experience, rather to logic. I am not really *having* experiences, *a fortiori* I am not in a position to compare them. Is this conclusion too jaundiced? No. Field-results are inchoate and fugitive. *White*, when it comes down to it, doesn't leave me

¹⁰⁵ Broad (1952, pp. 284-5) splits his sensa into 'tame' and 'wild'. 'Tame' sensa behave themselves and show up in nice tidy groups. 'Wild' sensa do not. I see no justification at all for this division. I treat all sensa as 'wild'.

anything to use as a benchmark flavour, if you will. That I cannot mistake *white* for *square* (under any circumstances) only tells me that the two experiences are one. Better: *that the two are not experiences*. The work, as we have said *ad nauseam*, is done *a priori*. In which case, a *science* of *sensa* is a nonsense.

With surprising ease we have dispensed with the material world. *Krakatoa* has lost its left hand relatum. So *Krakatoa* goes. What remains is a *sensum*, a cognition (**x-cognition**) and a relation holding between the two. I see no presumption against resurrecting *Super* (thus):

*sensumSuper*x-cognition**

A candidate inflection of this formal sentence might be as follows:

*purple-sensumSuper*purple-cognition**

Do we need *Super* here? Would a conflation of *purple-sensum* and *purple-cognition* not be advantageous? It would not be justified. Moore throws up an argument against such a conflation¹⁰⁶. The *sensum* and the cognition are non-identical because

1, *It is conceivable that the purple-sensum exists when I do not cognize it;*

2, *It is inconceivable that the purple-cognition exists when I do not cognize it (better: when I am not purple-cognizing);*

3, *The purple-sensum is non-identical to the purple-cognition.*

Not conclusive, but fairly decent. Decent enough to prompt *intuitions* which suggest that an appearance needs something *in* which to appear (if not someone to whom to appear). We have severed the appearance from any hypothesized physical object. The elliptical *sensum*, for example, no longer has a coin *of which* it is an appearance. And this was (admittedly) hard to stomach. For us now to proffer that the *sensum* floats in appearance-space, as it were, without terminating in *an* appearance

¹⁰⁶ Given in Moore (1966b) p. 31. There is another flank to this argument involving the parts of any mediate cognizeable. It runs (with identical structure to the argument we track above): 1, It is conceivable that the *sensum* exists *where* the mediate object is (*ie.*, as part of the mediate object's surface or spine); 2, It is inconceivable that the cognition exists where the mediate object is; 3, The *sensum* is non-identical to the mediate object.

(presupposing that an appearance is a *cognitive event* of some kind) verges on madness. On reflection, however, insanity endorses germane inference. Our *sensa* are ontologically so bland that it seems impossible that *they* will be able to individuate cognitions. And if they cannot individuate cognitions, then what reason do we have to suppose that there *are* cognitions? We are prevented from exploiting the individuating character of matter; matter having been abolished along with the material world furnitures¹⁰⁷. Nervous systems (therefore), distal sense-organs (likewise) fail to pick out a *particular* cognitive episode. I *qua* purple-cognizer cannot use any part of myself to mark a unique event. I cannot exploit the *sensum*. I cannot self-identify. I have (surely) exhausted the repertoire. Do we (then) have a result? Yes. Our result points to the next:

The world is exhausted in the sensum.

It is not a particular *sensum*, rather a world-exhausting block *sensum*. It is not *of* anything (because there is nothing left of which the *sensum* can be). The *sensum* is not indexed to a particular cognition. The *sensum* itself plays the only individuating role in the world; it is ontologically bland (colourless, if you will). The *sensum* self-individuates because it *alone* remains, exists. It exists as a purely logical object; taking up no space, indicating zero time. It engages neither in truth nor in falsehood. It forms no complexes, enters into no propositions. What (then) can we say of it? Simply that it *is*. Which theoretical retrieval is *Parmenidean*. *Qua* ontologist I affirm the *sensum* (silently).¹⁰⁸ I resist saying that it is *green*, *square*, *hot*, *bitter* .. (in turn). For there are no *turns* as such. Properties are expressed (silently) without being *had*. Alternatively, we might say that the *green* *sensum* has its world (and exhausts it); the *square* *sensum* has its world (and exhausts that), and so on. Better: the *green* *sensum* *is* its world (and exhausts it), and so on. A verdict, really, which defies assessment. Does our terminus here flag a *reductio ad absurdum*? Quite possibly. Before we acknowledge this, however, I would like to run this extremely odd theoretical product alongside the stylized Aristotelian model, *viz.* *to cognize X is to be X*. Well, what would be candidate formula for pre-*reductio* sense-datum theory? Perhaps the next: *to be is to be the sensum*.

¹⁰⁷ Remembering, of course, that matter played *the* individuating role in superaristotelian hylomorphic philosophy. That, indeed, was matter's only egregious function, *viz.*, its ability to receive forms and *thereby* single them out.

¹⁰⁸ Cf. Diels/Kranz (p. 238) fr. 8, 34: *tauton d'esti noein te kai oumechen 'esti noema*. Parmenides allows for a costive description of *the* predicament. I cannot really go wrong when there is only one thing to say. If the affirmation is authentic, then it is *the* affirmation. Which is, inevitably, a world-encapsulation.

Again:

To cognize X is to be X.

To be is to be the sensum.

Problem (if we hope to fruitfully juxtapose the two): a sensum is not a cognition. Well, a sensum is *the cognition* without the cognizer. And the *cognition without the cognizer* is everything there is. One model proposes that two items *are one* in cognition. The second model bruits the condensate: there is one item (and it is *the cognizeable*): it *comprises* logical space. Can we speak of theoretical moiety here? I don't know that it is justified. After all, the first model maps the structure of an *act*. Compared with the second this model is thespian - it identifies protagonists and invites multigrade cognitive inflection. The block sensum model is scarcely even *a model*. We record it as treating of cognition only if we pinpoint, and then make replete, the cognizeable (the sensum). The ploy is utterly recondite; the result quintessentially enigmatic. At which point I beg to report that no sense-datum theorist would entertain the next (and last) given thought-product:

To be is to be the sensum.

We grant this. However, we claim to have tracked sense-datum theory to its logical conclusion. This is where, according to our analysis, theory should terminate. In a Parmenidean world-exhausting ontic condensate. No matter whether theorists sunder these cryptic pastures. The point we make is that they should, if they are to be consistent. And this, we claim, demonstrates the weirdness of the sensum. An immediate cognitive object is discovered which draws theorist into such terrain. Now we stand at the edge of the cliff. And wish to step back (having ostended a pre-*reductio* landscape). Let us now pronounce verdict on theory.

Sense-datum theory bristles with difficulties. Its initial promise is compromised by problems associated with the ontological character of the immediate cognitive object. It is (paradoxically) bland and all-consuming. Phenomenologically self-effacing, it is a logical cancer. If we wish to exploit it to explicate facts of appearance (which is tempting), then we lose omnigrade non-appearance facts. In short, we lose everything except it. Such is the predicament of the sense-datum theorist. Such is our verdict. And it is timely. I think we are now in a position to provide an overall assessment of the three cognitive models that we have

canvassed¹⁰⁹. This assessment will mark the end of our study.

f1: Conclusion to cognitive study. Three models given, their structure finally vetted.

Each of our models is faced with the same problem. They must uniquely characterize *cognition*. Characterizations need to be non-circular and theoretically watertight. *Prima facie*, cognizing seems to be a special activity; not everything in the world cognizes. Putative accounts must capture this fact, somehow explicate it. I think it is plain that each of the three models *begins* with the identification of a uniquely cognitive item which is supposed to connect subject to object. For the superaristotelians this uniquely cognitive item is an *esse intentionale* form. For Locke it is a Lockean *idea*. For the likes of Broad, Moore and Russell it is a *sensum* (a *sense-datum*). Clearly, this strategical approach creates problems. For where we once had two items, we now have three. A *cognizeable:cognizer* formal sentence has (after analysis) expanded into the next:

mediate cognizeable: immediate cognizeable: cognition/ cognizer

The three require respectable connection. The fulcrum, in each case, is the middle term (of what looks like a three-term relation). Aquinas plumps for an intentional object in the cognizer's soul. Locke bruits a simple effect (an *idea*) which goes proxy for its cause. A sense-datum theorist proposes a single-propriety appearance. The difficulty they face is the same. They must get their surrogates to take the appropriate stance (both to their mother objects - if indeed there are any - and *to* (or *in*) the terminating cognition). And as we have seen this is very tricky. The surrogate cannot have the features of the mother object in the same way as the mother object (lest we manufacture *another* mother object - and suffer infinite regress). The immediate cognizeable must *be* the mediate cognizeable in some nonstandard way. (This requirement applies across the board, no matter how we take our objects - whether they be natural substances, accidents, corpuscularian items, causal atoms.) *So it is the relations between the immediate cognizeable and the other terms which are philosophically important.* How do our theorists propose to best

¹⁰⁹ For the purposes of heuristical acceleration we treat of the superaristotelian model as *one*. We treat (here as before) Aquinas' cognitive model as a refinement of the Aristotelian.

characterize these relations? This is the key question in our study.

The superaristotelians endorse a formal identity holding between cognizeable and cognizer. This formal identity uniquely flags the cognition. When I stone-cognize the *esse intentionale* version of the stone accrues to my soul. This apparently strange tale is actually the most naturalistic of our cognitive stories. The stone I cognize (*stone*) exists in the paddock with pretty much the same complexity and general character as the stone in my soul. That's why I *stone-cognize* (as opposed to anything else). If I accept the metaphysics of this account then it doesn't threaten to undermine anything in my experience. Things are as they seem. Stones do exist in paddocks. They are stable, hylomorphic objects which seem pregnant with cognitive opportunities. In the right conditions they accrue to my soul without drastic malformation. The reason I don't weigh any more when I stone-cognize is because it is the form of the stone which accrues to my soul (and not the stone itself). This marks story number one.

And what of Locke? Locke's stone's do not exist in the paddock in anything like the way they exist in me (in my Lockean mind). Strictly speaking, there is no *stone**: no fundamental, complex cause of STONE*). *stone** awaits further analysis. *stone** (subjected to analysis) ought to reduce to simpler causes. Locke's model copes best with the simples. WHITE* and ORANGE* and ROUND* and SQUARE* win causes in pungent fashion. Thanks to the *x**-finding algorithm they read straight off (without delay): *white** and *orange** ... these are Locke's atoms, if you will. Their content (the likes of *Wonton* and *Orangutan*) reveals ultimate world-structure (form). Complex structures are cognitive-products, not raw materials. Nonetheless, Locke has to plump for an ontic stance for his simple content-holders. *Wonton*, for example, must exist in WHITE* in a way which is non-identical to the way it exists in *white**. We tried to capture this difference in ontic stance by demarcating *Regular* and *Super*. *Regular*, if we recall, had to be non-cognitive (lest the Lockean idea cognize - absurdly - the Lockean simple cause). But if we are less charitable here, then we are authorized to say that it is *Wonton* which *intentionally* expresses in WHITE* and which *naturally* expresses in *white**. In so saying we are not spreading mischief, rather pointing out that WHITE* must have the causal power to make me *white-cognize* and *white** must not. *white** just makes sure that it is *Wonton* (and not, say, *Orangutan*) which gets passed on to WHITE*. Exactly the same logical tension as we saw in the superaristotelian model is at work here. How do we get cognitive content to show up where our intuitions suggest it should? *Not* to show up in kettles and billiard balls, rather to show up in minds (*with* mental ideas). And how to map this *showing up* with a non-circular model. It is always tempting to smuggle in cognitive-

representational elements which probably deserve separate explication. It might be legitimate to flag certain elements as *primitive*. It is illegitimate to simply append a label to an operation without provisional quarantine. We *suppose* that Locke wants *Super* as a primitive. He presumably doesn't think that such a relation can be further analysed into component parts (or into more select job descriptions). *Super* and (WHITE* + *Wonton*) are expected to secure both objective and subjective cognitive dividend. We mapped the logical structure of this feat, finding it internally consistent. But we were not satisfied that the explication was complete. And we table this dissatisfaction. Moving on (thus) to our final batch of cognitive theorists.

We found Broad (and the like) identifying *appearances*. These appearances were christened *sensa*. A *sensum* accounted for homogenous abnormal field-results. It was *the* immediate cognitive object. As to its character we could not be mistaken. If it seemed *F*, then it was *F*. It was a simple. (It turned out to be *the* simple.) Nothing could be simpler (and consequently stranger). The *sensum* couldn't be physical in the same way that, say, the dollar coin was physical. We couldn't allow the appearance to be cognizeable, thereby risking appearance-hosting appearances. Yet theory insisted on *objective* status for the *sensum*. It was a *datum* (a given). We resiled from it being a mental-given. Conflicting theoretical demands stranded the *sensum* in appearance-space, in limbo. In the end it was treated as the quintessentially *logical* object. At which point it became tricky to see how it could *F*-exemplify. But it *couldn't* be tricky. All the *sensum* was was *F*. If it wasn't *F*, then (surely) nothing was *F*. It *F*-exhausted the world, it transpired. It proved itself to be a logical cancer. Which seemed a preposterous terminus for what we thought was an empirical research programme. However, as we had already noted that all the research work was done *a priori*. So perhaps we shouldn't have been surprised when a logical condensate engorged exemplification-space. This, we suggested, was actually the proper end-point of the appearance ploy. In many ways, sense-datum theory was the most perspicuous cognitive model. It demonstrated very clearly what drastic steps must be taken in order to guarantee that the cognitive model is theoretically watertight. In the end *the surplus of experience* must be shunned. The fulcrum of each three-relatum model must really take care of everything cognitive. And what was that fulcrum? Well, it was (in *all* cases, I submit) a *theoretical* object. It wasn't a substance, a corpuscle, or a coloured patch. It was never available phenomenologically (despite multiform claims). It was a *philosophical* manipulandum, purpose-built to secure respectable cognitive connection. At best we can report that it was *a discovery*. Three models in the empiricist tradition had picked it out as the key cognitive

item. And it was, they thought, properly charted in logical space, *in situ* marking a uniquely cognitive possibility. If a point in this cognitive ontic domain *illuminates*, then a cognition is flagged. For Locke and the sense-datum theorists this cognitive point is our indubitandum. Everything else is up for grabs. Tables and planets might stand to the left of the cognitive point. They might even stand as hypothesized causes. But *posits* all the same. By no means given in the cognition. On the right hand side of the cognitive point perchance stands a mind, a nervous system. Again: *unjustified posits*. Less counterintuitive were the superaristotelians. They flagged tables and the stones on planets as naturalia. Nonetheless we only knew them if we had the intentional surrogates in our souls. So the idealist centrifugal force, if we can call it that, was always felt. The posits which fed off the central theoretical object (*ei* form, Lockean *idea*, *sensum*) were always inferences. What was immediately cognized was never the stone (*stone*). It *was* something else (entirely). Something which common sense would take as nonstandard. But something which the philosophers took to *comprise* our standard, cognitive being.

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¹¹⁰ The primary sources list Broad as our author of choice, simply because he is the theorist we exploit to win structure and voice for sense-datum theory. Fellow guardians, advocates (modern and hypermodern) of *sensa* are relegated to the secondary sources.

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