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# John Pecham's Theory of Natural Cognition: Perception

**Abstract:** In my paper, I argue that John Pecham develops his theory of perception in two distinct ways throughout his works: the first is an account influenced by the model of perspectivist optics: the second is a psychological account of perception as an active process that is influenced by Augustine. I try to show that these two models are not incompatible, but they are thought of as describing two *aspects* of the perceptual process: whereas the perspectivist model aims at accounting for the mode of transmission of sensory information from the object and its reception in the sense organ, the psychological model aims at accounting for those processes that follow upon that reception. In order to explain the nature of these psychological processes, I provide an excursus into the Pecham's metaphysics and in particular the nature of the relation between the body and soul in the context of a pluralist theory of forms in the human composite. The complementarity of these two models is not however complete, as the perspectivist model also provides a description of psychological processes operating on the received sensory information. I claim that Pecham never attempts to explain how these two models come together and so the resulting picture is of two parallel running tracks with few contact points. Now, one feature that arises from the psychology aspect of the perspectivist model of perception, as Pecham develops it, is the apparent influence of reason on human perceptual experience. In the final section of the paper, I suggest a number of similarities between this account and the early Franciscan tradition (the *Summa Halensis* and John of La Rochelle), at least in what concerns action. The final, tentative suggestion is that this role of higher order powers on perception is the result of the significance of the will to (early) Franciscan authors.

John Pecham (Iohannis Pecham), known as the ingenious doctor (*Doctor Ingeniosus*), was born in Sussex, studied in Paris under Bonaventure and probably Walter of Bruges, taught theology from around 1270 to 1274 (first in Paris and then in Oxford), was appointed Minister Provincial of the Franciscan Order in England (1275), and then archbishop of Canterbury, a position he occupied until his death (1279–92) replacing the Dominican Robert Kilwardby, upon the latter's appointment to the Cardinalate by Pope Nicholas III.<sup>1</sup> Pecham's influence is felt in his numerous notorious students,

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<sup>1</sup> It is worth remarking that this constitutes probable evidence of the influence of anti-Thomist movement within the Curia and also in the English province: otherwise, the Pope would not have substituted Kilwardby, whose 1277 Oxford Prohibitions included Thomist views, namely on the unicity of the human soul, with Pecham, a well-known critic of Aquinas with whom he had publicly disputed

namely Matthew of Aquasparta, Peter John Olivi, Vital du Four (in Paris) and Roger Marston (in Oxford).<sup>2</sup> Scholars have long disagreed on some key elements of Pecham's intellectual profile, often revealing a clear mistrust in his judgment and regarding him as a source of untrustworthy testimony due to Pecham's recognized opposition to Thomas Aquinas on a number of theological and philosophical issues. The aim of this article is not however to focus on any of the polemics Pecham was involved in during his time but, as the title suggests, on Pecham's theory of human cognition, in particular his account of perception.

In what follows, I will argue that Pecham is of two minds when investigating the way we come to know the world, here focused on visual perception: there is on the one hand a psychological type of description, focused on the activity of the soul operating on the passively-received incoming sensory information (species) in the sense organs; we find this mode of description in the *Quodlibeta*, *Quaestiones de anima*, and *Tractatus de anima*. According to a second level of description, which we may call epistemological or simply optical, the account of visual perception is focused on the mode of transmission of that information from the object to the sense organ via the medium plus the pathways from sense organs to central visual perceptual powers. This account, which is found in his two treatises on optics – the *Perspectiva* and *Perspectiva Communis* – also includes elements of faculty psychology when describing the three levels of processing incoming sensory information Pecham adopts from Ibn al-Haytham's (Alhazen's) *De aspectibus* (c.1028–38). This second type of description develops around three numbers: 3 levels of visual perception, from the 'naked sight' to 'syllogistic apprehension'; 8 necessary conditions for a veridical perceptual episode; and 22 visual intentions – i.e. types of properties – that can be perceived by sight.

These two types of description are tied to two distinct philosophical traditions in the philosophy of perception that we find in a few authors in mid-13th century. The first results from the influence of Augustine and the second from Alhacen (and the perspectivist tradition of geometrical optics with such authors such as Witelo and

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on the issue of the unicity of the human soul. On this, see A. Boureau, *Théologie, Science et Censure au XIII<sup>e</sup> Siècle: Le cas de Jean Peckham* (Paris: Les Belles Lettres, 1999); and G.A. Wilson, 'The Critique of Thomas Aquinas's Unicity Theory of Forms in John Pecham's *Quodlibet IV (Romanum)*,' *Franciscan Studies* 56 (1998), pp. 423–31. His views on this matter were clearly well-known among the Curia, as he elaborated on them when teaching at the papal university – which came down to us as the *Quodlibet Romanum*. On this, see D.L. Douie, *Archbishop Pecham* (Oxford: Clarendon Press, 1952), pp. 43–44. Pecham's promotion brings into question the traditional understanding of Kilwardby's appointment to the Cardinalate as a way to punish and remove him from England following his Prohibitions.

<sup>2</sup> Douie, *Archbishop Pecham*, pp. 5 ff.; see also S.T. Livesey, 'De viris illustribus et mediocribus: A Biographical Database of Franciscan Commentators on Aristotle And Peter Lombard's *Sentences*,' *Franciscan Studies* 56 (1998), p. 218 in pp. 203–37.

Bacon).<sup>3</sup> These two philosophical traditions were complementary to the by-then-established Aristotelianism and its faculty psychology-focused version of Avicennian philosophy. In bringing together all these disparate traditions in the philosophy of perception, Pecham perfectly represents the dynamism and complexity of medieval philosophy, showing that an accomplished theologian can also be an exquisite metaphysician, an opiated philosopher of mind and an original epistemologist.

## Psychological Description of Perception

If perception is a process by means of which we come to know objects and their properties in the external world, the starting point for any theory of perception must be an account of the way information about that sensible object comes to be present in a cognitive subject. Following a tradition inaugurated around his time, Pecham postulates the existence of 'species', likenesses of sensible properties that exist in external corporeal objects,<sup>4</sup> like the color 'white'. The existence of such mediating entities was thought to be required because of the Aristotelian principle according to which no sensation follows from the direct contact of a sensible object on a sense organ; thus, the sensible form must be received from a distant object without matter. But if the species are issued from a material object and are received in a perceiver's senses,<sup>5</sup> the species of the sensible property must have a kind of being appropriate to being transmitted to the medium and to being received in the senses.

One option, common to the period, is to take the species as having a *spiritual* nature, above and beyond the material nature of the property in the external thing. Pecham attributes this spirituality-requirement, which makes the species ap-

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3 On the relation between these perspectivists, see D.C. Lindberg, 'Lines of Influence in Thirteenth-Century Optics: Bacon, Witelo, and Pecham,' *Speculum* 46:1 (1971), pp. 66–83.

4 The essence of the species is to represent that of which they are the likeness. John Pecham, *Quaestiones de anima* (*Quaest. de anima*), ed. H. Spettmann and G. Etzkorn, in *Quaestiones disputatae*, ed. G. Etzkorn, H. Spettmann, L. Oliger (Quaracchi: Collegium S. Bonaventurae, 2002), II, q. xxiv, p. 175: 'Cuius exemplum est in specie rei visibilis corporalis, quae ostendit id, cuius est species, nec tamen ostendit essentiam suam, nisi ut est alterius similitudo.' *Quaest. de anima* II, q. xxiv, p. 177: 'Certe loquendo de convenientia univocationis similior est species unius coloris similitudini alterius coloris, saltem eiusdem speciei, quam ipsi colori, cuius est similitudo, et tamen non ostendit aliam speciem, sed colorem, cuius est species.' Pecham's point here is that different species of different colors (say, of white and of black) are more alike each other, in an ontological sense, than with respect to the quality they represent. However, they represent the quality of which they are the species (or likeness). The contrast is between the being of species and their epistemological role.

5 Aristotle, *De anima* II.7. Although medieval authors agreed on this principle, they often disagreed on what to call these intermediary entities: Alhacen uses the term 'forma', whereas Pecham and Bacon prefer the term 'species'. The disagreement does not end with their name but as D. Lindberg points out, all these authors make ambiguous statements about the nature of species, namely, whether it represents a point of the object or the whole object. This ambiguity is repeated throughout the medieval period.

propriate and proportional to the nobility of the perceiving soul, to Augustine and his principle that material things cannot bring about an effect that is ontologically superior to them.<sup>6</sup> A corporeal thing is not able to act on the soul causing a cognitive act. The spirituality of the species is intended to solve this problem by claiming that what acts on the soul is not the physical external thing but a spiritual species that the external thing issued forth. But this does not solve the problem; it just moves it one step away: the remaining issue is not how the object acts on the soul but how the material object generates a spiritual species.

In view of this difficulty, Pecham argues against the possibility of a material object issuing a species with a spiritual mode of being.<sup>7</sup> For him, an infinite force is required to transform something material into something spiritual;<sup>8</sup> and material things just lack such infinite power or force. Pecham argues for an alternative view, which denies the spirituality of the object-generated species and claims instead that the species are corporeal. Pecham takes the species to be corporeal in the sense that they have dimensions (*dimensionata*), in accordance with the dimensions of the subject in which they are received: the medium through which they are transmitted and of the organ in which they are received.<sup>9</sup> Pecham does not go as far as to say that the species are material in the sense that by taking them on, the medium and the sense organ come to exhibit the sensible property of which the species are likenesses.

The recipient of the species, the sense organs, also needs to fulfil certain requirements for this reception. It is not enough for them to be corporeal, but they must be composed by certain material dispositions such that they are susceptible to receiving certain *kinds* of species, like color in the case of sight. This means that sense organs are characterized by a neutrality or indifference (*medietas et indifferentia*) to a spe-

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<sup>6</sup> John Pecham, *Quodlibeta quatuor (Quod.)*, ed. Etzkorn and F. Delorme (Quaracchi: Collegium S. Bonaventurae, 1989), I.3, p. 8, referring to Augustine's *De musica* VI: 'Corpus nullos numeros imprimit animae quia "omne agens est nobilius patiente."'

<sup>7</sup> To be more precise, from the form of the external thing. John Pecham, *Quaestiones Tractantes de anima (Quaest. tract. de anima)*, ed. Hieronymus Spettmann (Munster: Verlag der Aschendorffschen, 1918), 9, p. 425: 'Res enim non gignit similitudinem nisi per formam suam.'

<sup>8</sup> *Quod.* I, q. 3.5, p. 8: 'Ergo hoc posito, effectus transcendit genus causae in infinitum. Cum effectus sit spiritualis-intellectualis, species vero gignens corporalis, ista gignitio non potest esse nisi per influentiam virtutis infinitae, hoc est agentis infinita virtute. Hoc etiam improbat per Augustinum, VI *Musicae* ubi probat quod corpus nullos numeros imprimit animae quia 'omne agens est nobilius patiente.'" The 'numeros' in the passage refer to the arithmetic expression of sounds, the perception of which is the focus of the *De Musica*. For a medieval interpretation of this passage, see Roger Marston's *Quodlibeta*. On Marston, please see J.F. Silva, 'Perceptiveness,' *Aristotelian Society Supplementary volume* 91 (2017), pp. 43–61.

<sup>9</sup> *Quod.* I, q. 3.4, p. 8: 'Species corporalis in organo corporali est dimensionata secundum dimensiones organi;' see also *Quod.* III, q. 9.5, p. 151: 'Speciei corporali quae est in organo et dimensionatiter.'

cific range of sensible properties, which in the case of eyes means being diaphanous and watery;<sup>10</sup> or air in the ear, making it conducive of hearing.<sup>11</sup>

Importantly, for Pecham, the corporeality of the species means that these must be received in the sense *organ* only and not in the sense *power*. Although the visual power (*vis visiva*) perfects the eye and has a natural connection (*colligatione*) with it such that together, power and organ constitute the capacity for seeing,<sup>12</sup> perception is not the mere reception of the species in the organ. Drafting his response in Augustinian terms, Pecham claims that perception is not the effect of an affection of the body caused by an external object but the soul actively tending to that affection in the body.<sup>13</sup> The result of this attentiveness is that whenever the eyes are affected by the incoming species, the soul *qua* visual power transforms itself into the likeness of whatever affected the sense organ, in accordance with, but not caused by, that affection.<sup>14</sup> The nature of this production is conveyed in the Augustinian terminology of 'the soul makes in itself and of itself' the image of the object,<sup>15</sup> and in taking the affection of the sense organ as an 'occasion' for self-caused assimilation:

those species are born out of itself [i. e. the soul] from an exciting occasion, not from an impressing cause. Any other way would be contrary to Augustine.<sup>16</sup>

Pecham contrasts a passive causal model of perception, according to which the impression of the species on the senses is the cause of the perceptual act with an active model, which he associates with Augustine, according to which perception consists of a two-stage process: the object issuing *corporeal* species that are received in the

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**10** John Pecham, *Tractatus de perspectiva* (*Tract. de perspect.*), ed. D.C. Lindberg, (Bonaventure, NY: The Franciscan Institute, 1972), 5, p. 43. See also John Pecham, *Perspectiva communis* (*Perspect. comm.*), in *John Pecham and the Science of Optics*, ed. and trans. D.C. Lindberg (Madison, WI: University of Wisconsin Press, 1970), I.31, p. 112.

**11** John Pecham, *Tractatus de anima* (*Tract. de anima*), ed. P. Gaudentius Melani (Florence: Edizioni Studi Franciscani, 1948), II.x.3, p. 34. John of La Rochelle eloquently describes this requirement as 'every power that operates by means of an organ operates only in accordance with the properties and possibilities of the organ.' ('Omnis virtus operans per organum operatur secundum proprietatem organi et possibilitatem tantum.') John of La Rochelle, *Tractatus de divisione multiplici potentiarum animae*, ed. P. Michaud-Quantin (Paris: J. Vrin, 1964), II.xiv, p. 81.

**12** *Tract. de anima* iv, p. 12: 'Est enim vis visiva perfectio oculi, sicut tota anima totius corporis.'

**13** *Tract. de anima* iv.3, p. 13: 'Non pati a corpore, sed in corporis passionibus attentius agerem et hoc eam non latere, sicut haec docet Augustinus, *VI Musicae*.' See also *Quod. I*, q. 3.10, p. 9, where he quotes Augustine's *De Genesi ad litteram XII*.

**14** *Tract. de anima* iv, p. 13: 'Necesse est animam advertere omnes mutationes factas in organo et naturali colligatione in illius similitudinem se transformare, et proportionaliter corpori se immutat.'

**15** *Quod. I*.12, p. 10: 'Species immutat organum corporale et organum immutatum excitat animam ad immutationem sibi consimilem suo modo quam anima facit in se ipsa de se ipsa.' The reference here is to Augustine's *De Genesi ad litteram XII* and *De Trinitate X*.

**16** *Quod. I*.16, p. 10: 'Species illae nascuntur de se per occasionem excitativam, non per causam impressivam. Aliter enim esset sibi contrarius Augustinus.'

corporeal sense organ,<sup>17</sup> which excites the soul to making (*fabricatio*) in itself an internal representation of that which is presented to the organ by the species.<sup>18</sup>

Before continuing, it is worth emphasizing that the adoption of an active model by Pecham does not mean that perception excludes a passive aspect. Passivity refers to the receptivity of the *organ*, whereas the active aspect is the activity of the *soul*.<sup>19</sup> He illustrates this with a comparison between desire and perception: both are motions from the soul (*ab anima*) that require images of sensible things that come to be in the soul are produced by the soul itself; however, insofar as the making of those images depends on the action of external things present to the senses exciting the soul, sense perception is also a motion to the soul (*ad animam*).<sup>20</sup>

Pecham owes us a justification for the soul being the principle of cognitive activity. He offers this by arguing first that no material thing can act on the soul because the transition from corporeal to spiritual requires an infinite power, as seen above. Appealing to three passages from Augustine's works, namely:

1. *De musica* VI: 'The rational soul (...) does not receive anything from the body.'
2. *De Genesi ad litteram* VII: 'The image of a body is not in the spirit [i.e. soul] [due to] the body, but the spirit forms it in itself with wondrous speed.'
3. *De Trinitate* X.5: 'The images of bodies the soul is entangled and carries with are made by the soul in itself or of itself.'<sup>21</sup>

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**17** It is important to note here that nothing Pecham says in these works about the species conflicts with his account in the *perspectiva*-centered works.

**18** *Tract. de anima* iv.7, p. 16: 'Anima transformat se in similitudinem rei cuius species est in organo.' See also *Quod*. III, q. 9, n.9, p. 151 (quoted below). As Pecham explicitly notes (*Quod*. IV, q.28, n.6, p. 238), 'Augustine teaches that neither the sensitive nor the intellective soul receive anything from the body but that it [i.e. either soul] forms in itself the likeness of that which externally presents itself on the occasion of the organ being informed by sensible species.' ('Ex quo Augustinus videtur per doctrinam [docere neque] animam sensitivam neque intellectivam aliquid a corpore recipere, sed ex organo informato speciebus sensibilium habere occasionem formandi in se ipsa similitudinem eius quod exterius nuntiatur.') I have briefly discussed this in J.F. Silva, 'Medieval Theories of Active Perception: An Overview,' in *Active Perception in the History of Philosophy*, ed. J.F. Silva and M. Yrjönsuuri (Dordrecht: Springer, 2014), pp. 126–28 in pp. 117–46.

**19** *Quest. de anima* 11, p. 443: 'Sed in potentia sensitive, quae est minus spiritualis, [est] activa potentia quae est ex parte animae, et passiva quae est ex parte organi. Et ideo quia sensus non est sine actione et passione, ideo dicitur esse coniuncti.' For the passive (Aristotelian) model, it is the sense (organ informed by the power) that constitutes the passive element, whereas the object is the active element, efficiently causing the act of perception by bringing about an actualization of the power's potentiality to perceive. When the soul is in the disembodied state, it must receive knowledge about particular things by means of the intellect precisely because it lacks the material component (the body) through which that kind of cognition is possible, i.e. the senses.

**20** *Quaest. tract. de anima* III.xxxvii, p. 212: 'Et secundum veritatem tam cognitio quam dilectio dicit motum ab anima, dicente Augustino, *Super Gen, ad Litt.* III, quod imagines non corpus in spiritu, sed spiritus in se ipso format celeritate mirabilia. Sed quia ista formatio non fit, nisi praeveniat in aliqua citatione vel excitatione a rebus sensibilibus per sensum facta, ideo dicitur cognitio motus ad animam.'

**21** *Quod*. IV, q. 17, n. 6, p. 214.

Pecham aims at showing on the basis of Augustine's authority the impossibility of bottom-up causality, that is to say, the impossibility of a transference of information from the material realm of the body to the immaterial realm of the soul as the result of the action of the body.<sup>22</sup> Pecham therefore contrasts the spiritual and active nature of the soul to the material and passive nature of the body, which he uses to show that the subject of perceptual acts is not the body or even the composite, but primarily the soul with the assistance of the body:

Sensation is not of the composite, as if the body were to co-operate [with the soul] in [the act of] apprehension, but [the body] assists the soul with the reception of the corporeal species, which does not enter the soul.<sup>23</sup>

The subject of sensation is the soul, with the body's contribution limited to be the recipient of the incoming species. In that sense, it seems clear that this epistemological model reflects an underlying metaphysical dualism of an agent operating soul and an instrumental body.<sup>24</sup>

The second argument for the soul as the principle of activity comes from the conception of cognition as the most intimate act of the soul, which means that cognitive acts must be efficiently caused by an internal principle.<sup>25</sup> Pecham grounds this principle of internal efficient cognitive activity on the assimilative capacity of the soul, which he describes variously as *transformabilis* and *assimilabilis* to the external (cognized) thing, as being essential to its nature. In a chapter on the substance of the soul, he defines it as

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**22** *Quod*. IV, q. 17, n. 6, p. 214: 'Illa quae est in organo gigneret sui similitudinem in spiritu, et hoc non potest esse quia corpus non agit in spiritum nec res corporalis gignit rem incorpoream, cum infinita sit distantia corporis a spiritu.'

**23** *Tract. de anima* IV.7, p. 16: 'Amplius, sentire non est coniuncti, quasi corpus cooperetur apprehensione, sed quia subservit animae in receptione speciei corporalis, quae in anima non intrat.' In the continuation of the passage, Pecham makes it clear that the soul is the primary agent in the process of perception because it continues to operate even in the absence of its habitual bodily instrument. The sensitive powers remain in the disembodied soul and can perform their operations provided that they receive the species – by whichever alternative ways may be (Pecham is not expansive on the details of alternative ways; in *Quod*. IV, q. 17, n. 7, p. 215 he does seem to suggest that at least angels could assimilate themselves to species of corporeal things in the medium, without the need for corporeal organs): 'Therefore, if the soul, which drags with itself the visual power [even when] separated from the body, having the occasion to transform itself in a given species, would not need the corporeal organ but can cognize by means of its own visual power.' ('Ergo si animae, quae secum trahit vim visivam, a corpore separate potest dari occasionem speciei in se transformandae, non indiget separata organo corporali sed potest cognoscere per suam vim visivam.'). On this, see also *Quod*. IV, q. 28, n. 6, p. 238.

**24** When using the instrument-terminology, Pecham refers to his inspiration, Augustine: see e.g. *Tract. de anima* IV.6, p. 15, referring to *De Genesi ad litteram* XII.3: 'Non enim corpus sentit sed anima per corpus, quo velut instrumentum utitur ad formandum in se ipsa quod exterius innitatur.'

**25** *Quest. de anima* 11, p. 444.

an incorporeal substance that is potentially cognizant of all things and whose substance is transformable into a likeness of all things, just like the wax is, due to its own aptitude, transformable into the likeness of all shapes.<sup>26</sup>

This extraordinary passage shows how for Pecham the soul, as spiritual substance is defined by its ability to assimilate itself to whatever comes to be its cognitive object, here compared with the nature of wax. In other places of his work, Pecham further elaborates on this comparison, in the context of interpreting Aristotle's *De anima* passage on the signet-ring and the wax tablet, intended as a description of perception: sense receives the form without matter just like the wax receives the shape of a signet ring without the ring's gold.<sup>27</sup> Pecham understands this analogy idiosyncratically as meaning that the (likeness of the) shape of the seal comes to be in the wax due to the self-caused assimilative action of the wax and not to the impressing action of the seal.<sup>28</sup> Applied to the context of the original analogy, this means that perception is the result of the activity of the soul, rather than the action of the sensible object. The activity of the soul is the result of its capacity to become like this or that on the occasion of an external affection of the body it informs:

I say here that it is impossible for the corporeal species to impress itself unto the rational soul, as Augustine says in *De musica* VI. But excited by sense, it forms in itself and of itself spiritual likenesses of those corporeal likenesses that are in the sense, on account of the eternal light. If you ask, in what way [is this possible]? I say that it is due to the soul's connection to the body as a perfection to its perfectible, naturally turning to the changes in the body and transforming itself into those likenesses. (...) In the same way as the soul naturally attends to all bodily affections also naturally the variation in the angle of refraction follows the variation in the angle of incidence.<sup>29</sup>

**26** *Tract. de anima* III.xiv.2, pp. 46–47: 'Anima enim, sicut supra probatum est, est substantia incorporea, in potentia omnium cognitiva, habens substantiam in omnium similitudinem transformabilem, sicut cera ex sui aptitudine transformabilis est in omnium similitudinem figurarum.'

**27** Aristotle, *De anima* II.12, 424a17–24. On this, see for example J. Owens, 'Aristotle: Cognition as a Way of Being,' *Canadian Journal of Philosophy* 6:1 (1976), pp. 1–11.

**28** *Quod*. IV, q. 17, n. 6, p. 214: 'Item, Philosophus comparat receptionem animae receptioni sigilli a cera. Et certum est quod similitudo sigilli in cera non [est] a sigillo originaliter, sed a cera.' *Tract. de anima*, pp. 46–47. On how this analogy is found in Augustinian authors of this period, see Silva, 'The Chameleonic Mind: Medieval Augustinians on the Activity of Perception,' in *Medieval Perceptual Puzzles: Theories of Sense Perception in the 13th and 14th Centuries*, ed. E. Baltuta (Leiden: Brill, 2020), pp. 38–72.

**29** *Quod*. III, q. 9, n. 9, p. 151: 'Dico ad praesens quod impossibile est speciem corporalem imprimere in anima rationalem, sicut Augustinis, VI *Musicae*. Sed excitatur a sensu et format in se de se similitudines spirituales illorum quorum similitudines corporales sunt in sensu, illustrante luce aeterna. Si quaeris qualiter? Dico quia colligatur anima corpori, sicut perfectio perfectibili, et advertit naturaliter immutationes corporis et transformat se in illarum similitudinem. Nec exigitur praecognitio, quia dirigit naturalis colligatio corporis et animae. Sic naturaliter sequitur anima omnes corporis passiones, sicut naturaliter variato angulo incidentiae variatur angulus reflexionis.' I discuss this passage in J.F. Silva, 'The Chameleonic Mind: Activity Versus the Actuality of Perception,' in *Medieval Perceptual Puzzles*, ed. E. Baltuta (Leiden: Brill, 2020), pp. 54–57 in pp. 38–72.

Pecham interestingly combines in this passage a few of the core assumptions in his theory of perception, namely, what he takes to be the core Augustinian thesis of the impossibility of bottom-up epistemic causality, as formulated in *De musica*; and his attempt to connect this with the perspectivist model of visual perception. I think there are three key ideas worth retaining from this passage.

First, that the soul's ability to react to an affection of the body and produce an internal representation of the species present to the sense organ is the result of, on the one hand, the soul's colligation to the body, which it perfects and, on the other, the soul's spiritual nature reflecting the eternal light. I will say something more about the former point but would like to remark about the latter that there are many ways in which the expression 'illustrante luce aeterna' can be understood. I take it that in this context it means that the soul is able to make itself like the incoming sensory information by having been divinely created with such capacity (I don't think Pecham is thinking of divine illumination in this passage because of the 'naturaliter' that follows).<sup>30</sup>

Second, Pecham uses the expression '*naturaliter*', i.e. naturally, to express the way the soul makes the spiritual likeness out of the corporeal likeness in the organ. Elsewhere, Pecham claims that this productive motion of the soul is due to the soul's natural capacity for examination (or 'to roam through': *perlustratione*), that is insofar as the soul is able to reflect on itself, it is capable of 'move itself and make a likeness of an external thing.'<sup>31</sup>

Third, Pecham further notes that this capacity is due to the soul's natural connection with the body,<sup>32</sup> but the delightful clause comparing the angle of incidence and angle of refraction of the visual rays reaching the eye (which will be further explained below) and the way the soul reacts to the affection of the body in producing its internal image, shows that Pecham takes this process as being 'automatic' from the outset. By 'automatic' I simply mean that the explanation why this is so is grounded on the nature of the entities involved – the soul and the visual rays. Rays refract when reaching the convex-shaped surface of the eye just like the soul produces spiritual images when the body it perfects is affected from the outside by corporeal species.

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**30** Pecham does use similar expressions to corroborate the doctrine of divine illumination, but this is so when talking about intellectual cognition. That is the case for instance in *Quod*. III, q. 10, where he shows that certitude about intellectual knowledge requires divine enlightenment. A similar formulation can be found in Roger Marston, *Quaestiones disputate de emanatione aeterna, de statu naturae lapsae et de anima* (Quaracchi: Collegium S. Bonaventurae, 1932), pp. 245–73; see E. Gilson, 'Roger Marston: Un Cas d'Augustinisme Avicennisant,' *Archives d'histoire doctrinale et littéraire du Moyen Age* 8 (1933), pp. 37–42.

**31** *Quod*. IV, q. 17, n. 9, p. 215: 'Et quia potest super se reflecti, potest se movere et facere similitudinem rei exterioris.' On this, see L. Spruit, *Species Intelligibilis: From Perception to Knowledge* (Leiden: Brill, 1994), vol. 1, p. 203.

**32** On this, see Silva, 'Medieval Theories of Active Perception,' p. 127.

## Metaphysical Excursus

Before proceeding to examine the second type of description of perception in Pecham's works, it is necessary to briefly investigate the nature of the colligation that exists between the body and the soul. There are two aspects worthy of closer inspection in the context of understanding Pecham's theory of cognition. One provides the wider metaphysical context in which Pecham writes; in what follows, I discuss this very briefly, as it is the focus of another contribution to this volume. The second aspect concerns the way the soul relates to the body in the execution of its cognitive operations and therefore is of clear consequence to Pecham's theory of perception.

The first aspect of this relation to consider is that the body needs to meet certain requirements of appropriated-ness to receive the soul. For the body to be appropriate (*comportionato*) and in our case noble (*nobilissimo*) is for it to have the right sort of dispositions allowing the soul to perform its functions.<sup>33</sup> This appropriated-ness is partially explained by the level of complexity of its structure prior to the infusion of the rational soul. The soul is not the form of the body (*forma corporis*) *qua* body – that is the form of corporeity (*forma corporeitatis*),<sup>34</sup> which continues to inform matter as constituting the body even after the infusion of the rational soul, i.e. the form of the species.<sup>35</sup> In addition, the human body prior to the infusion of the rational soul is informed by the vegetative and sensitive soul-kinds, but this composite is ordained to completion by the rational soul, which perfect those preceding material forms so that the composite can perform the operations proper to its species.<sup>36</sup> It is also this last complete form, as the form of the human species, that gives unity to the human composite.<sup>37</sup>

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**33** *Tract. de anima* I.vii, pp. 25–27.

**34** The existence of such form of the body independent of its being informed by the soul was essential to addressing key theological problems, namely those of resurrection, veneration of relics, and the status of the dead body of Christ during the *triduum*. Pecham discusses this topic extensively in his *Quod*. IV, q. 11, pp. 196–202, where he opposes Thomas Aquinas' view. On this, see Wilson, 'The Critique of Thomas Aquinas's Unicity Theory of Forms;' and (with reference to Pecham) J.-L. Solère, 'Was the Eye in the Tomb? On the Metaphysical and Historical Interest of Some Strange Quodlibetal Questions,' in *Theological Quodlibeta in the Middle Ages: The Thirteenth Century*, ed. C. Schabel (Leiden: Brill, 2006).

**35** *Quod*. IV, q. 259, p. 230: 'Dicendum igitur quod anima rationalis non est forma corporis, secundum corpus est, immo praesupponit corporeitatem, cuius forma non corrumpitur per adventum animae, quia nullam habet cum ipsa corporeitatem.' On the nature of matter and its distinction from form (for Pecham, matter has an essence and therefore is an entity of its own right), see *Quod*. IV, q. 1, pp. 174–76.

**36** *Quod*. IV, q. 374, p. 256: 'Quia licet anima rationalis sit forma immaterialis, tamen complet omnes formas materiales et perficit eas, ut esse et operari possint operationes consonas speciei.'

**37** *Quod*. IV, q. 259, p. 231: 'Unde sunt in homine formae plures gradatim ordinatae ad unam ultimam perfectionem, et ideo formatum est unum.' Just before this passage, Pecham notes that this 'teleological structuring' is down to the mixture of the elements: 'Omnes formae quattuor elementorum

Like the human body also the human soul is constituted by spiritual matter, which explains its individuation,<sup>38</sup> and by a plurality of forms, namely the vegetative, the sensitive, and the intellective.<sup>39</sup> It is unclear what the precise ontological status of these forms is, as Pecham seems to accept a certain level of independence to them while rejecting that they are really distinct from one another.<sup>40</sup> In any case, it is clear that he takes 1. these lower kinds of soul (vegetative – which Pecham also calls *ci-bativa* – and sensitive) to be different from the intellective soul in that they require the body for their operations; and that 2. the individual human being has only one soul, which is completed and perfected by the intellective *potentia*. Following a traditional pluralist strategy, Pecham appeals to a genetic argument to justify this pluralism: the process of human generation is ordained to the completion by the rational soul, which when created (by God) and infused in the composite of body and sensitive soul, perfecting it.<sup>41</sup> The result is one rational soul that is simple in its mode of presence (being whole everywhere in the body) but composite in the sense of integrating vegetative, sensitive, and intellective forms.<sup>42</sup>

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reductae sunt in unam formam mixti; non cuiuscumque mixtionis, sed illius quae est propria complexionis humanae.’

**38** *Quaest. tract. de anima* III.xxv, p. 184; *Quest. de anima* 12, p. 447.

**39** *Quaest. de anima*, q. 4, p. 363: ‘Ergo, secundum hoc dici potest unam esse in homine animam plene eum vivificantem, compositam ex triplici substantia et vita, scilicet vegetativa, sensitiva et intellectiva.’ Pecham is however ambiguous and only comments that this is the most probable (*probabilior*) theory. On the early Franciscans conception of the soul as one *in tribus potentiis*, see Alexander of Hales, *Doctoris irrefragabilis Alexandri de Hales Ordinis minorum Summa theologica* (SH), 4 vols (Quaracchi: Collegium S. Bonaventurae, 1924–48), II, In4, Tr1, S1, Q3, Ti1, C2 (n. 332), p. 404; see also John of La Rochelle, *Summa de anima*, ed. J.G. Bougerol (Paris: Vrin, 1995), chapter 26, pp. 87–89. According to John, if these were three substances, the operations of one would impede the operations of the other; however, we do not experience such impediments. He cites (ed. Bougerol, p. 86) Augustine as an authority for this unicity theory, not aware that the work he cites from (*De ecclesiasticis dogmatibus*) is not by Augustine.

**40** While wanting to remain neutral on this matter, I would suggest that Pecham is close to the pluralist position that Zavalloni describes as ‘dispositional subordination’ of the vegetative and sensitive with respect to the intellective soul, as different determinations within one and the same substance; Roberto Zavalloni, *Richard de Mediavilla et la controverse sur la pluralité des forms* (Louvain: Éditions de l’Institut supérieur de philosophie, 1951), p. 336.

**41** *Quaest. de anima*, q. 1, p. 326: ‘Ideo generat aggregatum essentialiter ordinatum ad animam rationalem. (...) Dicendum quod [compositum] generatur ex corpore et anima sensitiva, quae non corrumpitur adveniente anima rationali, sed completur. Et quod generatum, et anima rationalis quae infunditur, non sunt duae animae sed una; sicut homo est una substantia ex anima composita.’ On this, see Zavalloni, *Richard de Mediavilla*. On a similar reasoning, see John of La Rochelle, *Summa de anima*, c. 26, p. 87.

**42** *Quaest. de anima*, q. 1. p. 327. See also *Quaest. de anima*, q. 4, p. 363: ‘Unam ergo habet homo tantum animam.’ I call them aspects in order to remain neutral about their ontological status. Pecham strongly argues against those who take the soul’s composite nature to be contrary to its simplicity; appealing to Hugh of St Victor, he remarks that the unity of the soul suffices for its simplicity. See *Quaest. tract. de anima* q. 26, pp. 188–89; *Tract. de anima*, p. 29.

Despite being a substance in its own right, the soul is essentially inclined to be united with it as its perfection.<sup>43</sup> This double consideration of the soul – in itself and in relation to the body – corresponds to a position found in Avicenna which the early Franciscans tended to adopt as theirs.<sup>44</sup> The resulting metaphysical picture is that of the human person as composite of two substances, soul and body, each composite of matter and form(s), and united by a principle of mutual inclination (*inclinatioe mutua*).<sup>45</sup> This picture makes Pecham aligned with the doctrine of a plurality of forms in the human composite – because he holds that both the body and the soul are matter-form composites, which are substances in their own right, individuated and subsistent by themselves.<sup>46</sup>

The second aspect of considering the soul-body relation is how the body needs to meet certain requirements of appropriated-ness to receive *the acts of the soul*. One of the key functions of the soul is to be the perfection of the body; to be ‘the perfection of’ means that the soul is a spiritual substance that rules the body which is subjected to it, so that an affection of the body – due to their colligation (*colligatio*) – triggers a corresponding action in the soul.<sup>47</sup> This is due to what Pecham calls the attention the soul pays to the body, as the body is the soul’s instrument for epistemic action: the soul is dependent on incoming information from the senses to acquire knowledge about things in the world.<sup>48</sup> But, as we have seen above, Pecham is careful to point out that this action of the object on the body does not cause but rather alerts the soul’s power to perceive.<sup>49</sup> Insofar as this is the nature of their relation,

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**43** *Quaest. tract. de anima*, q. 26, p. 187: ‘Anima, dependet et inclinatur per essentialia sua ad corporis perfectionem.’ Although this particular passage is about the soul in the disembodied state, it applies to the soul in general, as this essential ‘unibility’ is constitutive of its essence.

**44** On this, see Lydia Schumacher, ‘The *De anima* Tradition in Early Franciscan Thought,’ in *The Summa Halensis: Sources and Context*, ed. Lydia Schumacher (Berlin: De Gruyter, 2020), p. 158.

**45** *Quest. de anima* 12, p. 447. Lydia Schumacher pointed out to me (in personal communication) that this principle of ‘mutual inclination’ seems to correspond to what John of La Rochelle calls ‘unibilitas substantialis’ of body and soul.

**46** *Quaest. tract. de anima*, q. 27, p. 187: ‘Concedendum est igitur per a<u>ctoritates [sic] et rationes praedictas animam esse compositam ex materia et forma.’ On the soul having matter and being individuated by it, see the whole section: *Quaest. tract. de anima*, q. 25–27. On the sources, including the early Franciscans, see C.G. Colley, ‘The Plurality of Substantial Forms in John Pecham,’ *Franciscan Studies* 73 (2015), pp. 59–80.

**47** *Tract. de anima* iv.3; see also *Quod*. IV, q. 30.8, p. 243: ‘Anima unitur corpori ut motor et perfectio.’ In this context, very important is the reference Pecham makes to Augustine’s *De quantitate animae* and the definition of the soul as ‘substantia quaedam rationis particeps regendo corpori accomodata’ (*Quaestiones de anima*, q. IV, Responsio, p. 50). See also *Tract. de anima* II.71, p. 28 on the spiritual nature of the soul.

**48** According to Pecham, the human soul knows in two ways: by means of the senses and by means of revelation from a superior source; see *Quod*. IV, q. 35.4, p. 254.

**49** *Tract. de anima* II.x.3, p. 34. See also *Quod*. III, q. 9, n. 9, p. 151: ‘Dico quod quia colligatur anima corpori, sicut perfectio perfectibili, et advertit naturaliter immutationes corporis et transformat se in illarum similitudinem. Nec exigitur praecognitio, quia dirigit naturalis colligatio corporis et animae.’

soul and body stand to one another like the sailor stands to the ship: the soul uses the body as the means to reach to a safe harbor.<sup>50</sup> But this mode of describing their relation is general, in that it corresponds to the essence of the soul: the soul is the perfection of the body by being essentially present as a whole in the whole of the body and in each of its parts (*tota in toto corpore et in parte*), which is an Augustinian trope.<sup>51</sup> The soul is present intentionally (*intensive*) as a whole in every part of the body rather than in extension (*extensive*),<sup>52</sup> and this mode of presence can be described as the soul being the perfection of different bodily parts as different powers. So, even though the essence of the soul is the perfection of the eye as a human eye, the soul is also the perfection of the eye as the power of sight.<sup>53</sup> The same principle applies not only to the other sense modalities, but also to all other functions it performs by means of (*mediante*) the body,<sup>54</sup> for instance those related to the preservation and propagation of life that belong to the vegetative part.

Pecham makes in addition one general and one specific claim about this. First, the soul is the efficient cause of the different operations of its powers directed to their proper objects. In that sense, the powers of the soul should not be thought of as accidents but as instruments through which the activity of the soul is exercised.<sup>55</sup> In other words, powers correspond to the soul's different modes of operation, with respect to specific objects, and in the case of sensory ones, by means of appropriate bodily organs as instruments of its action. In what concerns the sensitive soul, Pe-

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50 *Tract. de anima* I.vii, p. 25. The reference to this notion here presents an interesting case study of the intricate network of influences authors of this period operate with. While Pecham uses Avicenna as his authority to defend this idea, the editor of the *Tractatus* (Gaudentius Melani) notes that the citation probably comes from John of La Rochelle's *Summa de anima* (I.45, p. 146). But John in fact quotes Augustine's *Enarrationes in Ps.* (99.10) as his source of this view. What this shows above all is, as noted by Gilson almost a century ago, the recognized doctrinal similarities found in the Platonists Augustine and Avicenna. See E. Gilson, 'Les sources Greco-arabes de l'augustinisme avicennisant,' *Archives d'histoire doctrinale et littéraire du Moyen Âge* 4 (1929), pp. 5–107. See also Lydia Schumacher, 'The *Summa Halensis*: Sources and Context,' in *The Summa Halensis: Sources and Context*, ed. Lydia Schumacher (Berlin: De Gruyter, 2020), p. 5 in pp. 1–7.

51 *Quaest. tract. de anima*, q. 27, p. 188: 'Anima est in qualibet parte corporis tota per essentiam.'

52 *Tract. de anima* II.viii.4, p. 29. On the soul as the principle of life, see *Tract. de anima* I.1–3. On its dependency on Alfred of Sareshel's *De motu cordis*, see C.G. Colley, *John Pecham on Life and Mind* (University of South Carolina, PhD diss., 2014).

53 *Tract. de anima* I.viii.5, p. 30. On this, see *SH* II, In4, Tr1, S1, Q2, Ti1, M1, C1 (n. 354), p. 431: 'Dicendum ergo est quod diversae sunt vires quae sunt perfectiones diversorum organorum.'

54 *Quod*, IV, q. 30.8, p. 243; *Quaest. tract. de anima*, q. 26.2, p. 189: 'Sicut anima per essentiam perficit totum corpus, ita per potentias partes corporis organizatas ad operationes determinat.' These correspond to the vegetative and sensitive functions.

55 *Quaest. tract. de anima*, q. 33, p. 207: 'Necessaria ergo sibi fuit potentiarum et virium diversitas secundum differentiam obiectorum.' For Pecham, the soul is predicated essentially of its powers because the powers are that without which (*sine quo*) the soul could not be perfect(ed); see *Quaest. tract. de anima*, q. 32, p. 205. A similar statement is found at *SH* II, In4, Tr1, S1, Q2, Ti1, M1, C1 (n. 354), p. 431: 'Dicendum ergo est quod diversae sunt vires quae sunt perfectiones diversorum organorum.'

cham distinguishes between cognitive and motive powers; and the cognitive powers are further divided into the external senses (*vires apprehensivae extra*), i.e. the five sense modalities of sight, hearing, smell, touch and taste; the internal senses (*vires apprehensivae interiores*). Pecham argues for the existence of five such powers: the *phantasia* or common sense, which is at the root of all sense modalities and is able to discriminate between their objects, such as sweet and white; the imagination, which retains that which the common sense receives; the imaginative power, which combines (or divides) apprehended sensory images into other images that may or not bear any correspondence to anything in extra-mental reality, like the image of (Pecham's own example) a man with two heads (in human beings, the imaginative power is also called cogitative); the estimative power, which apprehends intentions (*intentiones non sensitivas*) such as enmity and friendliness, which despite not being sensed by the external senses are received together with the sensible species; the final power is the memory, which retains the intentions apprehended by the estimative power.<sup>56</sup> Pecham is not particularly expansive on these faculties and for the most part it reproduces the model of faculty psychology found in Avicenna.

What matters for our purposes here however is the way Pecham insists that all the powers are one with the soul in substance (even if not one in essence) and that the diversity of powers expresses the ways in which the soul is directed to (i.e. operates with) different kinds of objects.<sup>57</sup> It is important to note that the diversity of powers and operations is not an obstacle to the soul's unity; rather, their multiplicity is grounded on the unity of being. The essential point for Pecham is that together they constitute one total causal efficient principle, with the soul as the principle of action and the powers as instruments of that action, without which the soul is not perfect.<sup>58</sup> The soul is perfected precisely by performing the operations that are proper to it.

## Optical Description of Perception

In the previous section, I have focused on examining the psychological level of description of perception according to Pecham, which included a few digressions about the nature of the soul as the primary agent of perception, its relation to the body, and the relation to its cognitive powers and among the cognitive powers themselves. In this section, I will examine a second kind of description (introduced at the beginning of this paper), which focuses on the mode of transmission of the sensible species from that object to the perceiver's sense organs. The transmission aspect is barely

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<sup>56</sup> *Tract. de anima* II.x.5–8, pp. 35–37.

<sup>57</sup> *Quaest. tract. de anima*, q. 32, p. 202. This view is aligned with the early Franciscans views on the matter; see *SH* II, In4, Tr1, S2, Q1, Ti1, C1 (n. 349), p. 425: 'Potentia est id per quod anima ad aliud est efficiendum vel recipiendum.'

<sup>58</sup> *Quaest. tract. de anima*, q. 32, pp. 202–4.

considered in the 'psychological' works. Probably the most significant connection between the two sets of works and the two approaches is that in both Pecham emphasizes the causality of the external corporeal object as the starting point the perceptual process but at the same time emphasizing that what the object causes is the diffusion of the species, not the perceptual act. Also, in this second type of description the activity of the soul is emphasized, even if it occurs at a later stage of visual processing. In both cases, it is clear that for Pecham, the reception of the visual rays/species is not sufficient for perception.

This aspect allows us to introduce a first major feature of Pecham's general account of visual perceptual experience, which is that it has an intromissive nature. Species are issued forth by external objects and travel through a medium until being received in a perceiver's sense organs. Pecham objects (like Alhacen had done extensively in his *De aspectibus* before him) to the view according to which visual rays exit from the eyes and travel across the medium to the object and from there back to the eyes, bringing back data about that object at a distance because he doubts any animal power would be capable of such a far-reaching action. Pecham's objection is qualified, though: while he objects to the postulation of these outgoing visual rays as conveyors (*nuntiantes*) of sensory information, he does allow for some sort of extramission of visual rays playing a supporting role in the perception of the external thing. According to Pecham, these outgoing rays do not travel all the way to the object but are issued to the medium immediately surrounding the eyes in order to prepare the reception of the incoming species. Pecham gives two reasons for the existence of these emitted rays: the first is that they follow from the principle that all corporeal things generate species – and eyes are bodily entities.<sup>59</sup> The second reason is that these visual rays are found in certain animal species,<sup>60</sup> like felines (whose emitted rays are visible at night). But if that is the case with some animal species, Pecham goes on arguing, it must be the case in all because 'vision is of the same kind in all animals.'<sup>61</sup>

Assisted by those outgoing rays, then, the species arrive at the perceiver's eyes from the object. According to Pecham, species are issued forth from all points at

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59 *Tract. de perspect.* 4, p. 37. The influence of Bacon seems clear: see Bacon, *De multiplicatione specierum* I, d. 7, c. 4; Bacon, *Perspectiva*, pt. I, d. 7, c. 2–3, pp. 100–2. Bacon objects to the full-extramission model, according to which the species from the eye would travel all the way to the object and back; he takes most authors (Alhacen, Avicenna, Averroes) to object to this idea, not his theory of the species spreading close to the eye. For Pecham, see *Pers. Comm.* I.46, pp. 128–29. A certain ambiguity in the Latin text of Alhacen (translated by an anonymous author in the late 12th or early 13th century) may be to blame for this account; see D.C. Lindberg, 'Alhazen's Theory of Vision and Its Reception in the West,' *Isis* 58:3 (1967), pp. 325–26 in pp. 321–41. At the same time, one of the most interesting arguments Alhacen presents against the extramission theory is that visual perception is not limited to brute sensation, i.e. the perception of what immediately is present to the visual power.

60 *Tract. de perspect.* 4, pp. 37–38; *Pers. Comm.* I.45, p. 129; see also *Quod.* III, q. 10, n. 9, p. 154, where he lists the cat, serpent, and lion as such examples.

61 *Tract. de perspect.* I.46, p. 129.

the surface of the object and propagate, if unimpeded, in a continuous straight line. The rectilinear mode of propagation is justified by it constituting the path of least resistance and the strongest mode of influence that any natural body is capable of exercising.<sup>62</sup> In order to guarantee that the species are transmitted and received in a way that is conducive to perception (i.e. that there was no distortion and thus that the ensuing perception is veridical and accurate), the model of perspectivist optics Pecham adopts postulates eight necessary conditions: 1. *lux*: the existence of light in the medium; 2. *distantia*: that the object perceived is at an appropriate distance; 3. *oppositio*: that the object stands opposite the perceiver; 4. *magnitudo*: that the object has an appropriate size; 5. *raritas*: the existence of a transparent medium between object and sense organ; 6. *soliditas*: that the object is solid and denser than the medium; 7. *tempus*: that perception takes time; and 8. *sanitas*: that the eye is healthy.<sup>63</sup>

The attentive reader will have noticed that in this section I have been alternating between ray and species. In doing so, I am following a variation found in Pecham's works, from the species in the psychological treatises giving rise to the conflated terminology of rays and species in the optical works (which should be understood as an attempt to merge the species doctrine of Grosseteste with the geometrical optics of Alhacen).<sup>64</sup> In fact, according to Pecham, a ray is nothing but the rectilinear way the species propagates.<sup>65</sup> We can therefore use rays and species synonymously in this context. But if the issue of terminology is not problematic, the issue of the mode of reception of these species/rays is. The problem is that if rays/species are issued from each point at the surface of any object in the visual field – radiating in all directions (radiantly: *radiose*) – how is it possible that these species be received in a way that does not lead to a confused perception of overlapping objects and parts of objects?

Pecham's answer is to claim that the species/rays received in the eye are arranged in accordance to the way they exist in the external thing perceived to the tune of one-to-one correspondence.<sup>66</sup> This is guaranteed by two very simple principles of geometrical optics: first, only one incoming ray from each point of the object received in the eye is perpendicular to the convex spherical surface of the eye.<sup>67</sup> All other rays are refracted (*franguntur*), lose intensity and proceed in a different way, namely, some of these are used to fill in the gaps (*cooperantur*), rather than being

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<sup>62</sup> *Perspect. comm.* I.27, p. 109. On the concept of the ray as following a straight path, see Euclid's *Optics* – although Euclid holds an extramission account of visual rays. The length and angle of the ray are fundamental to adjudicating all other properties, such as size and distance.

<sup>63</sup> *Perspect. comm.* I.47–54, pp. 130–35. See also *Tract. de perspect.* 7, pp. 48–49, which lists nine conditions because he adds *situ*: the place an object occupies; on a reduced (to three conditions) version, see *Tract. de anima* I.v.2, pp. 17–18.

<sup>64</sup> As proposed by Lindberg, 'Lines of Influence in Thirteenth-Century Optics,' p. 75.

<sup>65</sup> *Perspect. comm.* I.27, p. 108: 'Radius enim nichil aliud est nisi species rei visibilis in directum facta porrectione.'

<sup>66</sup> *Perspect. comm.* I.37, p. 120.

<sup>67</sup> *Tract. de perspect.* 6, p. 47.

the primary conveyors of information. Second, the perpendicular rays form a (visual) pyramid that has its apex at the center of the eye and the base on the visible surface of the object.<sup>68</sup> That pyramid of incoming rays delimits the visible surface of the object seen (*sub qua res videtur*) – i.e. the surface of the object that is visible falls within the limits of that pyramid. But of course, this gives the perceiver direct access only to the surface of the object facing them; so, for the object to be completely processed (in a certified way), as Pecham puts it, the eye needs to move in order to properly scan the object.<sup>69</sup>

The existence of a mechanism by means of which that scanning is urged and executed, as well as the process whereby incoming information (the visual rays) is arranged so as to reproduce in a punctiform way the external object, show that visual perception cannot be the result of the mere reception in the glacial humor (the crystalline lens) of incoming sensible forms from the object.<sup>70</sup> Instead, perception requires the action of other cognitive powers beyond the power of sight. But importantly, the nature of that action can only be determined when it has become clear what the content of our visual perceptual experience is, that is to say, only when we are clear about which properties of external things are acquired (and thus represented) in visual perception.

The tradition of perspectivist optics, including Pecham, argues that there are twenty-two particular visual intentions that can be perceived by sight: light, color, distance, position, corporeity, shape, size, continuity, separation, number, motion, rest, roughness, smoothness, transparency, density, shadow, darkness, beauty, ugliness, similarity, and diversity.<sup>71</sup> Taken together, these intentions constitute the form of the sensible object; in other words, these twenty-two visual intentions define the perceptibility of an object.<sup>72</sup> Pecham notes, however, that these are not *all* the properties that can be perceived by sight, but those additional properties are parasitical as it were on the twenty-two just indicated, i.e. they can be reduced to one of those

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68 *Tract. de perspect.* 6, p. 45: 'Visus sit per pyramidem radiosam, cuius conus in oculo, basis res visa.'

69 On *visione certitudinali certificata*, see also *Quaest. tract. de anima*, q. 34, p. 209.

70 Another issue that arises from this is how to account for a single image – and thus act of seeing – from binocular vision. Pecham, following Alhacen, posits the place of the actual judgment of sight at the (hollow of the) common optic nerve connecting the two eyes, where the *ultimum sentiens* is located (*Perspect. comm.* I.32, pp. 117–18; *Tract. de perspect.* 6, p. 48: 'Patet igitur quod visus qui in oculo incipitur in nervo communi consummator.') See Alhacen, *De aspectibus*, ed. A.M. Smith, I.6.68–69, pp. 52–53.

71 *Perspect. comm.* I.55, p. 134.

72 Alhazen, *De aspectibus*, bk. II, c. 3. On this, see A.M. Smith, 'The Big Picture in Perspectivist Optics.' I have reservations about Smith's suggestion that these twenty visual intentions are somehow inchoate in the forms of color and light. The only way this is right is if it means that these other properties are said of the thing which is colored. It is also worth pointing out that Bacon (*Perspectiva*, pt. I, d. 10, c. 3, p. 158) calls the twenty intentions common sensibles (*sensibilia communia*), whereas light and color are the *per se* sensibles of sight.

twenty-two. A few examples include curvature, which is reducible to shape; multitude, which is subordinate to number; increase, which is reducible to diversity.<sup>73</sup> Now that we know which properties the perceptible form of the object encompasses, we must inquire into how these are perceived.

According to Pecham, only the first two – light and color – are perceived by the power of sight alone. The remaining twenty (and those that can be reduced to these) require the intervention of other cognitive powers, in a model of visual perception that includes three different levels or stages of processing. Before moving on to describe these stages, it is important to note that this model does not originate with Pecham, who adopts it from the *De aspectibus* of Alhacen,<sup>74</sup> as well as in other perspectivists such as Roger Bacon and Witelo.<sup>75</sup>

The first level of visual perception is that by ‘naked sense’ (*sensu spoliator* or *solo sensu*), which means by sight alone, without the interference or assistance of any other power. At this first level, as mentioned before, only color and light are perceived. Even if there are other visual properties beyond light and color, these can be perceived only insofar as they are conjoined in that which is colored.

Among the other sensible properties that we perceive by sight are those properties things have by being related to other things in certain ways. One such property is that of similarity (or dissimilarity). However, to perceive the similarity or dissimilarity between things depends on the capacity to compare forms and to discriminate or distinguish between them. For instance, we can differentiate between letters that com-

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<sup>73</sup> *Perspect. comm.* I.55, p. 134. It is important to point out that perceptual error can happen with respect to the twenty visual forms, other than light and color, by means of less-than-perfect environmental conditions (the eight conditions stipulated at the beginning of the work). One of the advantages of the perspectivist model of perception is precisely the detailed way it can account for visual perceptual error, in contrast with other perceptual theories which tend to be sparse in how to account for it. An example of this can be found in John of La Rochelle, *Summa de anima* (c. 65, p. 193), where he lists a number of visual illusions – such as seeing movement in stationary objects in land or a stick seen as broken when partially immersed in water – without providing any explanation of why this is so beyond stating that the soul fails because it attributes to the external things what it finds in the bodily senses: ‘In uisione autem corporali sepe fallitur anima, cum in ipsis corporibus fieri putat quod sit in corporeis sensibus.’ On the issue of medieval perceptual errors, see J.F. Silva and J. Toivanen, ‘Perceptual Errors in Late Medieval Philosophy,’ in *The Senses and the History of Philosophy*, ed. B. Glenney and J.F. Silva (London: Routledge, 2019), pp. 106–30.

<sup>74</sup> Alhacen, *De aspectibus*, bk. II, c. 3. On this, see Sabra, ‘Sensation and Inference.’ Alhacen describes the three levels of visual perception as *per solo sensu*, *per cognitionem* or *per distinctionem*, and *per argumentationem*. Only the latter entails sequential ordering of conceptual parts, i.e. inference proper. For the same interpretation, see also G. Federici Vescovini, *Le teorie della luce e della visione ottica dal IX al XV secolo* (Perugia: Morlacchi Editore, 2003), pp. 164–65.

<sup>75</sup> Roger Bacon, *Perspectiva*, pt. I, d. 10, c. 3, pp. 154–59. On Bacon’s account, see Katherine H. Tachau, *Vision and Certitude in the Age of Ockham: Optics, Epistemology, and the Foundations of Semantics, 1250–1345* (Leiden: Brill, 1988); see also A.M. Smith, ‘Saving the Appearances of the Appearances: The Foundations of Classical Geometrical Optics,’ *Archive for History of Exact Sciences* 24:2 (1981), pp. 73–99; and Silva, ‘Perceptual Judgment in Late Medieval Perspectivist Psychology,’ *Filosoficky Casopis: Special Issue on Perception in Scholastics and Their Interlocutors* 2 (2017), pp. 29–60.

pose a word in a written text or perceive the dissimilarity between this shade of green and that shade of blue.<sup>76</sup> According to Pecham, this mode of visual perception is not the result of the power of sight only, but it requires the intervention of a different cognitive faculty, which he calls the 'distinctive power' (*virtus distinctiva*). As the result, this second level of visual perception is called *per distinctionem*. In addition to perceiving similarity, the distinctive power is able to make use of previously acquired knowledge retained in memory and apply it to the species currently received in the sense organ. This comparative process allows for the phenomena of identification and recognition, as we can only know that this is such and such if we know what it is for something to be such and such, which requires having prior knowledge of it.<sup>77</sup> Pecham calls this mode of visual perception whereby the distinctive power makes use of previously acquired knowledge perception *per cognitionem vel scientiam*, and it comes in two 'flavors': the first consists in the comparison between the species of a particular received in the sense *organ* and the universal in memory (which the particular instantiates), which allows for the identification of this perceptual object as 'a human being' or this object as 'a stone'.<sup>78</sup> The second consists in the comparison between the particular thing currently present to the sense *organ* and its species stored in memory and so that we recognize John as 'John' (*Iohannem esse Iohannem*).<sup>79</sup> What becomes clear is that the comparison between forms performed by the distinctive power at this level of visual perception allows for a more detailed determination of the perceived object, if one already possesses knowledge about that object. Pecham illustrates the contrasts between the first and second levels of visual perception in relation to the difference between seeing light and color and apprehending the essence of light and color (*quidditas lucis et coloris*), which cannot be known *sine scientia et distinctione*.<sup>80</sup> What this means is that what sight alone per-

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<sup>76</sup> *Perspect. comm.* I.56, p. 136.

<sup>77</sup> *Tract. de perspect.* 9, pp. 53–54. My interpretation here tries to make sense of a discrepancy between the account Pecham presents in *Tract. de perspect.* 9 where he deals with veridical perception and in *Tract. de perspect.* 10 where he deals with perceptual error. In the former, he distinguishes between *solo sensu*, *per distinctionem*, and *per cognitionem vel scientiam*, whereas in chapter 10 he refers to them as 'per sensum, per scientiam, per syllogismum'. As the first account does not include the perception of key features such as distance and size that are apprehended *per syllogismum* mode and that it would be odd for Pecham to have changed his mind from one chapter to the next, I take it that the first list is incomplete and that the *per distinctionem* and the *per scientiam* are aspects of the second level of visual perception. They both proceed by applying background knowledge (be that particular or universal) to incoming particular sensory information.

<sup>78</sup> *Perspect. comm.* I.57, p. 136: 'Nullum enim visibile cognoscitur sine distinctione intentionum visibilium vel sine collatione aut relatione ad universalia cognitorum prius a sensibilibus abstracta, que fieri non possunt absque ratiocinatione.'

<sup>79</sup> *Tract. de perspect.* 9, p. 53: 'Alius modus est per cognitionem vel scientiam, in quo enim aspectu cognosco hominem esse hominem et lapidem esse lapidem et Iohannem esse Iohannem et huiusmodi, et hoc per relationem specie moventis organum ad speciem in memoria latentem. Quod patet quia res cuius non memoramur, etiam si prius viderimus, videndo non cognoscimus.'

<sup>80</sup> *Tract. de perspect.* 9, p. 54.

ceives is only color and light, but not the species of color, that is to say, the exact color or hue; that kind of perception requires a comparison with existing and previously apprehended knowledge – so that one can perceive this as blue or this as yellow.

The third level of visual perception is called *per syllogismum* and consists in the collation of the different particular intentions that allows for an absolute consideration of the thing present to the visual field. This third level or stage requires a process akin to reasoning (*quaedam ratiocinatio*) and is best illustrated by the way we perceive distance and size. The magnitude of distance is apprehended on the basis of the continuous distribution of the intervening objects in the visual field that lay between the perceiver and the object (the distance from/to which is being measured), which in turn depends on previous knowledge about the (expected) sizes of the intervening objects. The size of an object, on the other hand, cannot be perceived solely on the basis of size of the angle at the vertex of the visual pyramid (which corresponds to the center of the eye),<sup>81</sup> but requires in addition the apprehension of the length of the pyramid's sides – which means apprehending the distance from the vertex to the base of the pyramid.<sup>82</sup> Although the process seems complicated and time-consuming, Pecham (like Alhacen, Bacon, and Witelo) remarks that the perceiver is not aware of performing such a 'reasoning-like' process (*non percipit se arguere*) because this takes place *swiftly*, in rational human beings, accustomed to performing it.<sup>83</sup>

What this shows is that the visual perception of a material object entails more than meets the eye, literally; it requires a sequence of steps of which the perceiver is not aware due to the velocity and easiness of the operation, so that in the end all the twenty-two visual intentions that constitute a thing's sensible form are perceived.<sup>84</sup> A question arises as to the nature of the power and/or of these operations. Whereas some are clearly sensitive, others seem to entail rational or at least rational-like abilities. Some perspectivists like Bacon would certainly disagree with the 'rational' clause. Bacon makes it clear in several passages that he takes these three levels or kinds of visual perception to be of a sensitive nature, despite some processes looking rational-like. Bacon explicitly blames this situation on a faulty Latin trans-

<sup>81</sup> *Perspect. comm.* 1.73, p. 144. See also *Tract. de perspect.* 6, p. 47.

<sup>82</sup> *Tract. de perspect.* 9, p. 55. On Pecham's perception of distance, see also J.F. Silva, 'Perceptual Judgment in Late Medieval Perspectivist Psychology,' *Filosoficky Casopis* 2 (2017), pp. 51–53 in pp. 29–60.

<sup>83</sup> *Tract. de perspect.* 9, pp. 53–54: 'Quam tamen ratiocinationem non advertimus propter velocitatem rationis in arguendo (...) Et quia homo ad arguendum natus est, non percipit se arguere.'

<sup>84</sup> On this, see Alhacen, *De aspect.* II.4.1, pp. 216–18: 'Et visus non comprehendit veram formam rei vise nisi per comprehensionem omnium intentionum particularium que sunt in forma rei vise.' Visual perception encompasses the form of the visible object, which is constituted by the particular visual intentions (*intentiones*), perceived by means of the different perceptual powers and their operations: from *aspectus* to *intuitionem*.

lation of Alhacen's work.<sup>85</sup> Pecham offers a subtler reading, especially in the *Perspectiva communis*, where he systematically refers to the distinctive power as operating 'as if by reasoning' (*quasi per ratiocinationem*), for instance in the case of perceiving two things as similar.<sup>86</sup> Perhaps this quasi-reasoning is there to signify that it is not a-rational but simply the operation of a sensitive power somehow resembling the way a rational power works. However, when he refers to the process of recognizing the object by means of the application of a general notion to that individual intention – so that one can identify this individual as a horse – Pecham concludes that this 'cannot be done without reasoning' (*absque ratiocinatione*) and goes on to say that the distinctive power reasons (*arguit*) with ease because it is born to do this, by a sort of 'natural aptitude' or inclination.<sup>87</sup> If the rational-like qualification seems to accurately describe the distinctive power as sensitive, some of its operations, like the certified perception of distance, entail a process of rational determination (*ratiōne colligitur*).<sup>88</sup>

The difficulty in dealing with this issue is that we are not used, in medieval faculty psychology, to hybrid powers that are both sensitive *and* rational or that cannot be clearly classified as either sensitive or rational. Instead of suggesting a break with tradition on very thin evidence, it is best for now to consider the distinctive power as being sensitive in nature – i.e. as belonging to the sensitive soul – but also as being such a power that under certain circumstances it functions in a rational way, capable of performing inferences. I take it that to function in a rational way means that in some operations and in human beings, the distinctive power is commanded or governed by reason.<sup>89</sup> (To make such a claim would not be unique, even in this period – think of among others, Thomas Aquinas and his conception of the cogitative power,

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**85** See *Perspectiva*, pt. I, d. 10, c. 3, p. 158, where he criticizes the 'intellectualization' of these terms in the Latin translation of Alhacen's work: 'Sed hec nomina non sunt propria, quia virtutes anime sensitive habent has cognitiones, quibus non debetur scientia nec sillogismus, *ut communiter accipiuntur*' (emphasis added). Bacon does accept that even animals have a grasp of 'vague universals' or 'generic universals'; on this see J. Hackett, 'Roger Bacon's Concept of Experience: A New Beginning in Medieval Philosophy?' *The Modern Schoolman* 86:1 (2008), p. 130 in pp. 123–46; and 'Animal and Human Knowledge in the *Perspectiva: (Opus maius, Part Five)* of Roger Bacon,' in *Philosophical Psychology in Arabic Thought and the Latin Aristotelianism of the 13th Century*, ed. L.X. López-Farjeat and J.A. Tellkamp (Paris: Vrin, 2013), pp. 222–41. It is important to keep in mind that Bacon (like Albert the Great) identifies the distinctive power with the cogitative power.

**86** *Perspect. comm.* I.56, p. 136.

**87** *Perspect. comm.* I.57, p. 136: 'Vis distinctive nata est arguer sine difficultate, que etiam aptitudo naturaliter exeritur.'

**88** *Perspect. comm.* I.63, p. 140.

**89** One could of course object to this by saying that also non-rational animals perform some of those complex rational-like operations. Pecham does not go into detail about non-rational animals, but a similar line of reasoning is found in Roger Bacon. The way out is to say that even though these operations seem similar in one case and the other, they are very different in nature: they are rational-like in non-rational animals due to a certain 'natural instinct' (as Bacon claims) and rational due to the presence and proximity to reason in rational beings.

which is able to grasp a singular under a common nature.) The question I would like to ask, in the remaining of this paper, is whether the possibility of this rational interference in the sensory realm of the soul is out of sync with respect to Pecham's Franciscan background; or whether the fault (if one can call it that) lies in the influence of Alhacen's perspectivist model.

## Pecham and the Early Franciscans

In this last section, I would like to consider whether the suggestion we find in Pecham about the rational interference in normal perceptual experiences of rational beings via the distinctive power finds any echo in the works of early Franciscans. The suggestion is not that the human functioning of the distinctive power arises from the Franciscan tradition; rather, the question is whether there is any aspect of this tradition when analyzing cognitive processes and/or the faculties responsible for those cognitive processes that bears any resemblance to a rational influence of perceptual processes. In what follows, I briefly examine a few passages from the *Summa Halensis* and the *Summa de anima* of John of La Rochelle, two works with which John Pecham was certainly familiar. I am not yet sure what to make of these passages, if much can be made, so I will proceed tentatively.

In the *Summa Halensis*, the authors start with an investigation into the nature and number of the so-called internal senses, and in order to do that, they discuss in some detail the views of Augustine, John Damascene and Avicenna (in this order). Augustine's list of powers includes sense, imagination, reason, intellect, and intelligence. John's list includes imagination, excogitation, and memory. Finally, Avicenna's list includes the powers of common sense, fantasy, imagination, estimative power, and memory. I will not go into the details of the *Summa's* analysis but mention two key ideas, relevant for my purpose here. The first is that the authors of the *Summa* proceed by asking four questions about these different lists of powers: 1. Are all the powers subsumed under Augustine's imagination? 2. Which of the powers listed by Damascene belong to the sensitive part of the soul? 3. Do all these powers of the soul have bodily organs and if so, where are these located? 4. On the basis of what principle or criterion (*ratio*) should the internal senses be distinguished? These questions provide the framework for the ensuing analysis.

The second idea to consider is the key faculty of the (ex)cogitative power proposed by John Damascene. The *Summa* dwells on considerations about its nature and suggests that one way of understanding it is to relate it to two powers from Avicenna's list: the imaginative and the cogitative power. According to Avicenna, in the *Summa's* reading, what properly characterizes the cogitative power is that it produces acts of judgment, that is combination or division of forms received from the senses (objects and properties). It is important to keep in mind that what is being suggested is not judgment in propositional form, but rather (and simply) a complex perceptual

form.<sup>90</sup> Even so, the problem with this Avicennian account, the authors of the *Summa* remark, is that such a judging capacity cannot be sensitive because to make such judgments goes beyond what a sensory power can do. The only way this can be done is, they suggest, if the cognitive capacity is understood as performing those operations of combination and division under the ruling action of reason. In other words, the idea is that the cogitative can remain a judging sensitive power without that entailing it being rational, if influenced in its operation by reason.<sup>91</sup>

The *Summa's* suggestion is thus that insofar as a sensitive power operates exclusively on sensory contents, its operations can be rational-like, as judging, because they are so due to being *functionally* directed by reason. Such a power remains *non-rational*, from an ontological point of view, as it does not belong to the rational *part* of the soul.<sup>92</sup> The text does not examine this matter further and the only somehow related matter I was able to find is a remark in the context of the estimative power of a distinction between the judgments of the rational estimative and the non-rational estimative power: whereas the former is said to apprehend intentions

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**90** SH II, In4, Tr1, S2, Q1, Ti1, C1 (n. 357), contra 2, p. 435: 'Praeterea, dicit Avicenna, qui explanat amplius, quod haec est componens et dividens secundum imperium rationis, et dicitur cogitative.' On this, see Jean Rohmer, 'La théorie de l'abstraction dans l'école franciscaine de Alexandre de Halès à Jean Peckam,' *Archives d'histoire doctrinale et littéraire du Moyen Age* 3 (1928), p. 129 in pp. 105–184. Rohmer reads this as meaning that 'l'imaginative obéit ainsi à la raison qui affirme ou nie la ressemblance avec le réel.' The same applies to Pecham, I claim: when examining the way familiar objects are recognized, on the basis of previously acquired knowledge, for instance, Pecham notes that the distinctive power does so *without* 'a comparison and the ordering of propositions' ('nec arguit per comparationem et ordinationem propositionum'): *Perspect. comm.* 1.57, pp. 136–37. The distinctive power trades on forms and intentions, not linguistic units.

**91** SH II, In4, Tr1, S2, Q1, Ti1, C1 (n. 357), Solutio, p. 435: 'Ad secundum dicendum quod, licet fiat secundum imperium rationis, non tamen in parte intellective, sed in parte sensitive, quae suadetur ratione; et licet "cogitare", secundum appropriationem dictum, sit parte rationalis, nihilominus per extensionem illius partis quae rationi copulatur.' In the *Tractatus de divisione*, John of La Rochelle notes that the intellect performs the operation of discrimination about sensible things when it operates in conjunction with the imaginative power: see *Tractatus* II.xiii, p. 97. It is unclear to me whether at least in the case of La Rochelle refers specifically to the material intellect qua *ratio* – an intellective power that results from the soul-body union; probably he does, but my interpretation does not rest on it being the case. What matters for my reading is that a higher order (rational/intellective) power operationally influences a sensitive power, i.e. my focus here is on the nature of this rational influence rather than the nature of the rational power doing the influencing. On the material intellect as 'rationalité' (*rationalitas aut ratio*), see Rohmer, 'La théorie de l'abstraction,' p. 135; and Lydia Schumacher, *Human Nature in Early Franciscan Thought* (Habilitation, Humboldt University of Berlin, 2020).

**92** Of course, we could argue that there is a minimal or weak sense in which it is rational, by being a power of a soul which is rational; but this minimal rationality is not very interesting in the sense that applies to all powers of rational beings, which in the case of human beings, would mean that even vegetative functions of digestion would be rational. This, I want to point out, is not suggested in the *Summa*. On the very complicated issue of the material intellect, reason, imagination, estimative and cogitative in the early Franciscan tradition at the intersection of Aristotle, Augustine, Avicenna and Averroes, see Rohmer; and Schumacher, *Human Nature*.

abstracted from matter, i. e. independent from its individuating conditions, the latter always apprehends particular intentions in colligation with the particular sensible forms.<sup>93</sup> I don't think we can make much out of this, but I do have a suggestion to make; however, as it is very close to a passage we find in another work, I will make my suggestion in the context of analyzing that work, remarking at this point that what applies to that passage applies to this one here.

The other text I want to consider is a brief passage in John of La Rochelle's *Summa de anima*. In chapter 85 (p. 228), John presents Avicenna's division of sensitive powers into cognitive and motive powers. According to Avicenna, as John presents him, the sensitive cognitive powers are further divided into those proceeding by animal apprehension and those by natural apprehension. Natural apprehension is done in accordance to nature (*per modum naturae*), meaning that it is not ruled by reason (*ratione non regitur*) and is always done in the same way (*semper uno modo est*). As a power operating in this natural reason-free mode John mentions *fantasia*, which in this respect is just like the vegetative powers.<sup>94</sup> His claim is that the soul does not always attend (*non attendit*) to the continuous operation of the *fantasia*, for instance when attending to incoming sensory information – just like it fails to do when sleeping.<sup>95</sup> In contrast, *animal* apprehension characterizes those powers subject to and influenced by reason – *virtutis subiectibilis et obtemperantis rationi*. John lists both the external and the internal senses as being the type of sensitive powers that operate *in obediencia rationis*.<sup>96</sup> Later on (*Summa*, c. 103; *Tractatus*

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**93** *SH* II, In4, Tr1, S2, Q1, Ti1, C3 (n. 359), Ad obiecta 2, p. 436: 'Ad secundum dicendum est quod aliud est de iudicio aestimationis rationalis et aestimationis sensibiliis, sicut dicit idem Philosophus. Nam aestimativa rationalis apprehendit etiam intentiones abstractas a materia, aestimatio autem sensibilis apprehendit eas cum colligatione formae sensibilis, quae non est praeter materiam.' On a very similar point with respect to the *phantasia* in Alexander of Hales, see Rohmer, 'La théorie de l'abstraction,' pp. 111–12. On the principle of a double aspect of powers of the soul in Franciscan authors, in particular John of La Rochelle, see P. Michaud-Quantin, 'Une division "augustinienne" des puissances de l'âme au moyen âge,' *Revue des Études Augustiniennes et Patristiques* 3 (1957), p. 238 in pp. 235–48.

**94** *Summa de anima*, c. 103, p. 252: 'Virtus autem motiua sensibilis est duobus modis: nam quedam est motiua modo naturali, quedam uero modo animali; et motiuam sensibilem modo naturali dico que nec mouet secundum apprehensionem, nec est subiecta imperio rationis, qualis est uirtus uitalis siue pulsatiua.' In the *Tractatus de divisione*, however, John does include however the *fantasia* among the *animal* powers, according to the *medicos* (II.xxix, p. 105). This is also muddled when he (*Summa de anima*, c. 86, p. 229) distinguishes between fantasy consider *ut natura* and *ut sensus*: whereas in the former consideration it is outside the purview of reason, in the latter it is subjected to the command of reason as any other internal sense.

**95** *Summa de anima*, c. 86, pp. 228–29: 'Fantasia igitur cum sit apprehensiua est apprehensiua per modum nature, quia eius operatio potissima non est subiecta rationi, sicut patet in sompniis, ubi maxima patet eius operatio;' see also *Tractatus de divisione* II.ii-iii, pp. 72–73. Strikingly, in *Tractatus de divisione* II.viii, p. 76, these same operations are assigned to the *ymaginativa* in animals and *cogitativa* in humans; again, in *Tractatus de divisione* II.xii, p. 79, it is *fantasia* that appears as the power responsible for motion together with the estimative power.

**96** 'Cognitiua uero siue apprehensiua modo animali, hoc est in obediencia rationis. Nam quedam est apprehensiua exterior, quedam apprehensiua interior.' *Summa de anima*, c. 87, p. 229. See also John of

II.xi – xii), John applies the same natural-animal distinction to the powers related to motion: the *natural* mode of motive powers are not subjected to control by reason (*nec est subiecta imperio rationis*); that is the case with breathing, about which we have no voluntary control. The *animal* mode of a motive power on the other hand when it belongs to a rational being, is subject to reason (*habet ordinem ad rationem*) in deciding to act in one way or the other (or even not to act).<sup>97</sup> It is unclear what exactly John understands Avicenna to mean by this 'obeying' or 'being subjected to reason' in the case of both cognitive and motive powers beyond the perhaps trivial claim that the operations of these powers are under our control.

I would like to suggest understanding this 'being subjected to reason' in two ways, which have opposite directions of fit (as it were). On the one hand, from the world to mind direction, it simply means that whatever we perceive by means of the senses, first external and then internal, it is designed to find its way into the intellectual realm, so that knowledge of essences of things can be grasped at the end of the intellectual process of abstraction. That is the traditional way, which constitutes the basis for the Aristotelian conception of science. On the other hand, from the mind to world direction of fit, these two passages (from the *Summa Halensis* and from La Rochelle's *Summa de anima*) seem to indicate that their authors were willing to consider that under certain conditions – which remain unspecified – higher order cognitive powers, namely reason, influence the way lower cognitive powers operate. It is difficult to understand what exactly this means because neither text elaborates on the issue. Maybe two examples – my own – can help making sense of this: first, about the rational influence on the operations of the external senses, which John explicitly stated (*virtutis subiectibilis et obtemperantis rationi, sicut est virtus visiva, auditiva*): if I so wish, I can voluntarily close my eyes and stop the array of visual information impinging my eyes (whether I can completely stop the flow of all perceptual information coming my way is a different story). That is an easy enough experiential fact to be accepted without much dispute. On the contrary, not to be subject to reason's commands, like *fantasia*, simply means that when the senses take on the incoming sensory stimuli, no voluntary control can be exercised over that information reaching *fantasia* – even if the soul would not attend and thus failed to further process that received information. I believe that is precisely the point John is making when comparing *fantasia* to the vegetative powers. A second example concerns the distinction between a rational and non-rational estimative power: a rational perceiver may receive an intention of harmfulness from a dangerous animal in front of her

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La Rochelle, *Tractatus de divisione multiplici potentiarum animae*, ed. P. Michaud-Quantin (Paris: Vrin, 1964), II.viii, p. 76; II.xxxiv, p. 109. In both these texts, the idea that reason or the intellect commands (*imperat*) this power is never fully spelled out. Interestingly, whereas *Summa* (c. 85) divides the cognitive powers into natural and animal operation – i. e. not subjected and subject to reason, respectively – the *Tractatus* (II.xi – xii) applies this division to the motive powers.

<sup>97</sup> *Summa de anima*, c. 104, p. 253: 'Sed sensualitatem proprie dicunt appetituum sensibilem secundum quod in homine est, et habet ordinem ad rationem.'

and yet not restrict her options as to what behavior to adopt to the reaction of running away: there are more than one way to escape a grizzly bear (*ursus arctos horribilis*), quite a few of which do not include running away (actually, in case of wild bears it is better *not* to run away!).<sup>98</sup> The fact that John identifies estimation and imagination with the material intellect in human beings strengthens this reading because it guarantees that humans have direct and immediate access to the pool of intellectual resources.<sup>99</sup> This ultimately entails grasping harmfulness in isolation from this particular dangerous animal because only the understanding of such intention at a level of generality allows one to envisage the full array of possible behaviors. Animals on the other hand do not have, according to this model, the type of abstract intellectual apprehension that would allow them to do so and therefore the estimation of such an intentional of harmfulness triggers the only possible reaction, which is to run away. The behavior is fixed by nature and there is no choice to be made about how to react.

If we turn to Avicenna for a brief moment, it is clear that the aim of his advocacy for a rational influence on the cogitative power has a practical motivation, namely, to allow reason to rein in the compositions (freely) produced by the imaginative faculty functioning as cogitative in human beings, so that we need not take something to be in a way that bears no correspondence to the way it exists (if it exists) in the extramental world. There are obvious practical consequences of the failure to do so.<sup>100</sup> Pecham does reflect on the nature of the cogitative power, namely, by considering whether it is a sensitive or intellectual power. Ultimately, he argues for it as being a sensitive power because its function is to combine sensible images from imagination with the intentions received by the estimative power,<sup>101</sup> which he takes to be responsible for the operations of pursuit or avoidance what is beneficial or harmful for the perceiving animal. This combination of imagined forms and estimated intentions does not take a propositional structure, but a complex representation.<sup>102</sup> Pecham does admit the existence of a different operation of cogitation (*cogitatio*), which is intellectual; this type of cogitation is that whereby the intellect combines abstracted phantasms coming from the outside (from the senses) and/or coming from above

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**98** This reading is supported by Avicenna's text: see Avicenna Latinus, *Liber de anima seu sextus de naturalibus*, ed. S. Van Riet (Louvain-Leiden: Éditions Orientalistes-Brill, 1968), IV.1, p. 8. In Thomas Aquinas, the cogitative – a sensitive power – plays exactly this role, under the influence of reason, which interferes with the sensory level in a process described as *refluentia* (see *Summa Theologiae* I, q. 78, a. 4, ad 5).

**99** I am greatly indebted to Lydia Schumacher for pressing me on this point and in general for advising (and correcting) me on the early Franciscans' material. All interpretations and mistakes are of course my own.

**100** Avicenna, *Liber de anima*, IV.1, p. 6. On this, see D. Black, 'Imagination and Estimation: Arabic Paradigms and Western Transformations,' *Topoi* 19 (2000), pp. 59–75.

**101** In *Tract. de anima*, p. 36, Pecham calls *phantasia* the power responsible for the operations traditionally associated with the three powers of the common sense, imagination and memory.

**102** *Quest. de anima* 8, p. 420.

and/or existing innately in the cognitive subject.<sup>103</sup> In different functions, the cognitive expresses elements from both sensibility and rationality.

It seems clear that this mode of influence is far-fetched with respect to the kind of operations Pecham assigns to the distinctive power in the process of perception. There, following the tradition of perspectivist visual perception theory, the way we apprehend the world is dependent on our capacity, rational-like, to organize and process sensory information. The perspectivist punctiform analysis of visual perception, whereby each point of the object generates a representation of itself, puts great strain to the processing faculties of collating the received information in a way that maps unto the external thing; the existence of a *virtus distinctiva* seems to be justified (required, even) by the need to certify (by means of prior knowledge) that the information received from all points of the visual field conform to how we know objects as being. In other words, perspectivist punctiform analysis of radiation of sensory information *demand*s the existence of a perceptual capacity that operates in a rational-like manner in order to offer a realist epistemology of perceptual experience.

That organization, which brings order to the chaos of sensory stimuli, is done for a purpose: our successful interaction with and integration in the world. Perception has an inherent practical purpose, our survival as living beings. Not to use the resources available to us as rational beings would be a waste; and medieval thinkers believed that nature does nothing in vain. Although these last few sentences are rather vague and general, they intend to show that there is a relation – indelible, perhaps, but there nevertheless – between the rational influence found in Pecham the perspectivist and those early Franciscans to whom Pecham succeeds. My suggestion is simply that the possibility of this kind of rational-like operations by sensitive powers or even downright rational commandeering would not be seen by Pecham as being without precedent and out of character.

I would like to conclude by suggesting that there is an underlying motivation for asserting the role of higher order powers in all cognitive functions of human life in the tradition to which the *Summa Halensis*, John of La Rochelle and John Pecham belong and that is the role of the will in human (mental) life. But to say how that story plays out is the subject of a different article.

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**103** Innate species are those inserted there by God from the outset, i. e. the creation of the individual rational soul; see *Quest. de anima* 10, p. 430.

