CHAPTER I

The Aristotelian beginnings

Although Aristotle never takes credit for coining the word *energeia*, there can be little doubt that it was his own invention. It appears nowhere in extant Greek literature prior to Aristotle, and even for some decades after his death it is restricted mainly to philosophical writers, particularly those of Aristotle's own school. By contrast, it occurs 671 times in Aristotle's works, about once for every other page of the Berlin edition. Unfortunately Aristotle discusses its etymology only once, remarking briefly that *energeia* is derived from "deed" or "thing done" ($\tau o \ \xi \rho \gamma o v$) (*Met.* IX.8 I050a22). Although this gives us the ultimate source of the term, the combination of *en* with *ergon* already had precedents in Greek, and it is likely that one of these was the more proximate source. The two available candidates are *energos*, an adjective meaning "active, effective," and *energein*, a verb meaning "to be active or effective, to operate." In either case the root sense of *energeia* is something like "activity, operation, or effectiveness." To say more than this based on etymology would be rash.

One way to proceed at this point would be to list its various meanings in dictionary fashion, illustrating each by representative texts.¹ Such a procedure would not explain what united the various meanings in Aristotle's mind and why he believed it appropriate to use the same term for them all. It would thus risk missing the term's more subtle nuances. It would also fail to illuminate the very aspect of *energeia* that concerns us most, its capacity for development in multiple directions. Among the questions we must eventually ask is that of what Aristotle left unsaid – what further developments the concept as he employs it suggests or invites, but does not receive at his hands. The best preparation for addressing this question will be to trace the development of *energeia* within his own works.

¹ See Chung-Hwan Chen, "Different Meanings of the Term *Energeia* in the Philosophy of Aristotle," *Philosophy and Phenomenological Research* 17 (1956), 56–65, for an example of this approach.

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Such an approach inevitably raises the vexed question of the chronology of Aristotle's development. Although many fine scholars have attempted to work out such a chronology since Werner Jaeger first popularized a developmental approach to Aristotelian studies in the 1920s, it cannot be said that the tremendous obstacles facing the enterprise have been overcome. Not only is there a dearth of relevant evidence, both internal and external; the greatest difficulty is that Aristotle seems to have revised and retouched his works throughout his career, so that any one of them may contain strata from several different periods. This creates a dismaying amount of leeway in the construction of possible scenarios. It is true that certain facts can be known with reasonable confidence – for instance, that the bulk of the Organon is earlier than the bulk of the *Metaphysics*. But it is a long stretch from such piecemeal facts to the creation of a single coherent chronology.²

My own approach will be to rely on only relative chronological estimates of this sort, particularly those that have received wide agreement. What makes this possible is that the type of development that concerns us here is conceptual rather than chronological. Nothing would have prevented Aristotle from developing a new application of the term while continuing to use it in its older senses, or from introducing a new application in a casual way, only to give it a systematic justification much later. Rather than speculating on the precise order of discovery and exposition, it is more profitable to focus on the arguments by which Aristotle moved from one characteristic application of the term to the next, or, where there are no explicit arguments, on the assumptions that might have made such a step seem natural. Although the resulting account will remain susceptible to revision in light of ongoing research, since its chronological claims are modest it should possess a fair amount of resiliency.³

ENERGEIA AS THE EXERCISE OF A CAPACITY

The origins of the concept of *energeia* are to be found in a simple distinction that Aristotle takes over from Plato. In the *Euthydemus* Plato

² See Jonathan Barnes, "Life and Work," *The Cambridge Companion to Aristotle*, ed. Jonathan Barnes (Cambridge, 1995), 1–26, for a general discussion, and Charlotte Witt, "On the Corruption and Generation of Aristotle's Thought," *Apeiron* 24 (1991), 129–45, for a critical comparison of recent developmental accounts.

³ The most controversial assumptions I will make are that the *Eudemian Ethics* preceded the *Nico-machean Ethics* and that *Metaphysics* XII is relatively late. On the former see Michael Pakaluk, Review of *Aristotle on the Perfect Life* by Anthony Kenny, *Ancient Philosophy* 15 (1995), 233–45; on the latter, Günther Patzig, "Theology and Ontology in Aristotle's Metaphysics," *Articles on Aristotle*, ed. Jonathan Barnes, Malcolm Schofield, and Richard Sorabji (London, 1979), vol. 3, 33–49. The connections I will discuss between *Metaphysics* IX and XII also tend to show the lateness of XII.

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distinguishes between the possession ($\kappa\tau\eta\sigma_1\varsigma$) and the use ($\chi\rho\eta\sigma_1\varsigma$) of good things such as food, drink, and wealth (280b–e). The *Cleitophon* applies a similar distinction, urging that one who does not know how to use ($\chi\rho\eta\sigma\theta\alpha_1$) something should refrain from exercising command over it and seek direction from another. The examples given range from material objects such as a lyre to one's own eyes, ears, or soul (407e–408b).⁴ Finally, the *Theaetetus* distinguishes between the possession ($\kappa\tau\eta\sigma_1\varsigma$) of knowledge and the active "holding" ($\xi\xi_1\varsigma$) of it, likening the difference to that between possessing a bird in an aviary and grasping it in the hand (197a–199b).

A similar distinction appears frequently in Aristotle's early works. Unlike Plato, Aristotle applies it almost exclusively to knowledge, sight, and other cases of perception. The result is that it becomes in his hands, not a distinction between possession and use in general, but one specifically between the possession and use of an ability or faculty of the soul. Aristotle also differs from Plato in preferring the terms *hexis* or *to echein* to indicate possession. Finally, and most importantly, he often replaces chresthai by energein as one term of the opposition. A typically Aristotelian statement of the distinction is this from the Topics: "the opposite of failing to possess (Exeiv) the power of sight is to possess it, while the opposite of failing to use (ἐνεργεῖν) the power of sight is to use it" (1.15 106b19–20). Elsewhere Aristotle contrasts possession (ἕξ15) and *energeia* in much the way that Plato contrasts possession (κτῆσις) and chrēsis.⁵ Not surprisingly, Aristotle frequently uses chrēsis and energeia more or less as synonyms.⁶ The Nicomachean Ethics places the Platonic and Aristotelian oppositions side-by-side as rough equivalents: "it makes no small difference whether we place the chief good in possession or use (κτήσει η χρήσει), in state or activity (ἕξει η ἐνεργεία)" (I.8 1098b31-33).

So the simplest meaning of *energeia* in the Aristotelian corpus, that of activity, turns out not to be the earliest meaning. The earliest meaning is activity considered specifically as the exercise of a capacity in contrast to its mere possession. This conclusion is confirmed by another early passage with Platonic ancestry, *Protrepticus* B63–65.⁷ The passage begins by laying down

⁴ Whether the *Cleitophon* is an authentic work of Plato is disputed, but it at least represents discussion in the early Academy.

⁵ For example, *Topics* IV.5 125b15–17.

⁶ *Eud. Eth.* 11.1 passim, *Top.* 124a31–4, *Physics* 247b7–9, *Rhetoric* 1361a23–24, *Magna Moralia* 1184b10–17, 1208a35–b2.

⁷ The *Protrepticus* is generally dated in the late 350s, contemporary with or shortly after the first version of the Organon. For a defense of the authenticity of the fragments see the introduction to Düring's edition.

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that "that which is composite and divisible into parts has several different activities (ἐνέργειαι), but that which is by nature simple and whose being does not consist in relation to something else must have only one excellence, in the full sense of the word." The correlation here between number of parts and number of energeiai would be odd if energeia meant no more than what we mean by "activity." The passage continues by correlating *energeia* directly to the possession of a faculty (δύναμις). It argues that if man is a simple being, man's sole proper work is to attain truth; on the other hand, if man is composed of several faculties, his proper work is that of the highest among them, as health is the proper work of a doctor or safety that of a sea-captain. Since the highest human faculty is reason, on either alternative man's proper work is to attain truth. The entire argument appears to be an application of a procedure recommended in the Phaedrus. In seeking to understand something, Socrates tells us, one must first determine whether it is simple or complex, then ascertain its capacities to act and be acted upon, which will correspondingly be simple or complex (270c-d). Aristotle adds two assumptions to this framework. The first is that each faculty has a corresponding energeia (or ergon); the second is that where there is more than one faculty, the ergon of that which is highest among them is that of the thing as a whole.

This passage in the *Protrepticus* is the first known occurrence of the correlation between *dunamis* and *energeia*. This is a correlation (and contrast) that will eventually be given other applications far removed from its origins in the distinction between possessing and exercising a faculty. The beginnings of the process are already apparent in the *Protrepticus*, for Aristotle goes on to argue:

The word 'live' seems to be used in two senses, one in the sense of an ability ($\kappa \alpha \tau \dot{\alpha} \delta \dot{\nu} \nu \alpha \mu \nu$) and the other in the sense of an exercise ($\kappa \alpha \tau' \dot{\epsilon} \nu \dot{\epsilon} \rho \gamma \epsilon \iota \alpha \nu$); for we describe as seeing both those animals which have sight and are born capable of seeing, even if they happen to have their eyes shut, and those which are using this faculty and looking at something. Similarly with knowing and cognition; we sometimes mean by it the use of the faculty and actual thinking ($\tau \dot{\alpha} \chi \rho \tilde{\eta} \sigma \theta \alpha \iota \kappa \alpha \dot{\theta} \epsilon \omega \rho \epsilon \tilde{\nu} \nu$), sometimes the possession of the faculty and having knowledge . . . [Hence] a waking man must be said to live in the true and proper sense, a sleeping man because he is capable of passing into that movement in virtue of which we say that a man is waking and perceiving something; it is for this reason and with reference to this that we describe him as living. (B79–80)⁸

⁸ I have rendered the first sentence as suggested by Stephen Menn in his discussion of this passage: "The Origins of Aristotle's Conception of Ἐνέργεια: Ἐνέργεια and εύναμις," Ancient Philosophy 14 (1994), 95.

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There are several points to notice here. First are the adverbial phrases *kata dunamin* and *kat' energeian*. The addition of the preposition *kata*, "in accordance with" or "according to," transforms the *dunamis–energeia* distinction into a tool for distinguishing different meanings of a word. The two meanings thus distinguished are not independent; as Aristotle explains, that which is said *kat' energeian* is the "true and proper" sense, that which is said *kata dunamin* is derivative from it.

Given this semantic distinction, only a short step is required to distinguish corresponding levels of actuality. Aristotle goes on to do precisely that – although without using the term *energeia* – in the continuation of the passage. First, he observes that "we say 'more' not only respecting the excess of that which has one definition, but also according to priority [i.e., the semantic priority just identified] . . . Thus we say that a waking man 'lives more' than a sleeping man, and that a man who is exercising his mental capacity 'lives more' than a man who merely possesses it" (B82–83). He then recalls the conclusion already discussed, that "thinking and reasoning are, either alone or above everything else, the proper work of the soul." Since to exercise the soul is to live, it follows that "the man who thinks rightly lives more ($\zeta \tilde{\eta} \ \mu \tilde{\alpha} \lambda \lambda \sigma \nu$), and he who reaches truth in the highest degree lives most of all." There follows a remarkable statement:

Now if living is, alike for every animal, its true being, it is clear that the one who will *be* in the highest degree and the most proper sense ($\kappa \alpha \nu \epsilon \eta \gamma \epsilon \mu \alpha \lambda i \sigma \tau \alpha \kappa \alpha \lambda \nu \rho i \omega \tau \alpha \tau \alpha$) is the thinker, and most of all when he is in action ($\epsilon \nu \epsilon \rho \gamma \eta$) and contemplating the most knowable of all things. (B86)

Evidently Aristotle is already prepared to subscribe to some form of distinction among grades of reality. His reasoning is that living constitutes the "true being" ($\delta\pi\epsilon\rho$ $\epsilon\tilde{i}\nu\alpha$) of a living thing; to live is to exercise the soul, and in a rational being such exercise is rational thought; consequently, one who is actively thinking both lives and exists more than one who is not. Although the highest grade of reality is not described as actuality ($\hat{\epsilon}\nu\epsilon\rho\gamma\epsilon\alpha$), a person at the highest grade is said to be active ($\hat{\epsilon}\nu\epsilon\rho\gamma\tilde{\eta}$). This already suggests how *energeia* as activity will lead naturally to its more technical sense as actuality.⁹

So far, then, we have seen that there are two senses of verbs such as "live," "perceive" and "know" and that the two senses correspond to two distinct

⁹ See Donald Morrison, "The Evidence for Degrees of Being in Aristotle," *Classical Quarterly* 37 (1987), 382–401, for further discussion of grades of reality in Aristotle. I have followed Morrison's translation of the first sentence of B82 rather than that of Düring, which takes Aristotle to be distinguishing different senses of the word 'more' (μãλλον) rather than different grounds for asserting that something is "more."

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grades of reality. In *De Anima* 11.5 Aristotle extends this scheme in light of his mature hylomorphism. He recognizes that even to call a man potentially $(\delta \nu \nu \dot{\alpha} \mu \epsilon_I)$ a knower is ambiguous, for it can be taken in two ways. In one sense a man is potentially a knower simply in virtue of his matter and the kind of thing that he is; in another sense he is potentially a knower only when he is educated so that he can actually think whenever he pleases, provided that nothing interferes. To be potentially a knower in the second sense implies that one is potentially a knower in the first sense, but not vice versa, so that the two grades of potentiality are sequential. As before, only one who is actually thinking is a knower "in full reality (ἐντελεχείϙ) and in the proper sense" (417a28).¹⁰ Aristotle goes on to apply the same analysis to perception verbs and to the case of someone who is said to be potentially a general, and he seems to assume that a similar ambiguity can be found in any case where a thing is said to possess some predicate potentially.

The three grades of actuality thus distinguished are conventionally referred to as first potentiality, second potentiality (or first actuality), and second actuality. Although this terminology is useful, it is worth bearing in mind that Aristotle at this point sees himself as distinguishing, not types of potentiality or actuality, but ways of possessing potentially or actually some predicate.^{II} The chapter goes on to observe that transitions from the first level to the second and from the second to the third differ in type. For a man who is in the weakest sense potentially a knower to become in the stronger sense potentially a knower requires that he undergo an alteration brought about by repeated changes from the opposite state – that is, by the process of learning. The alteration is initiated by an external agent already possessing the property that the object undergoing change possesses only potentially. The transition from first to second actuality, by contrast, can occur without any alteration or the action of any external agent: one who already potentially knows in the strong sense can become an actual knower at will, simply by recalling the latent knowledge to mind. Despite such differences, both types of change are alike fulfillments of the thing's nature and steps toward fuller reality. Aristotle describes the first as a change toward the object's "proper states and nature" (ἐπὶ τὰς ἕξεις καὶ τὴν φύσιν) (417b16), the second as "a development into itself and into full reality" (εἰς αὐτὸ γὰρ ή ἐπίδοσις καὶ εἰς ἐντελέχειαν) (417b6-7).¹²

One of the most interesting features of this scheme is the fact that the transition from first to second actuality does not require an external agent,

¹⁰ The word *entelecheia* will be discussed below.

¹¹ See Menn, "The Origins of Aristotle's Conception of Ἐνέργεια," 88–92.

¹² See also the extended discussion of change from first to second potentiality at *Physics* VII.3.

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but proceeds of itself if nothing prevents it. In *Physics* VIII.4 Aristotle takes advantage of this feature to solve a problem in his theory of motion. He wishes to explain how the motion of the elements can be natural without being self-caused, which would require the elements to be alive. After repeating the observations of the *De Anima* about ways of potentially knowing, he states that "the same holds in the case of the heavy and the light: for the light is generated from the heavy, as, for instance, air from water . . . ; it is already light, and will at once act ($\hat{\epsilon}\nu\epsilon\rho\gamma\dot{\eta}\sigma\epsilon$ I) as such unless something prevents it. The activity ($\hat{\epsilon}\nu\acute{\epsilon}\rho\gamma\epsilon$ IC) of the light consists in the light being in a certain situation, namely high up; when it is in the contrary situation it is being prevented from rising" (255b8–12).¹³

In the final sentence I have followed the Oxford translation in rendering *energeia* as "activity." But the sentence has an awkward ring; we do not normally think of simply being somewhere as an activity. The same problem arises for another example Aristotle gives a few lines further down, that of something of a certain quantity extending itself over a certain space. Again, we do not think of being extended over a certain space as an activity. This awkwardness illustrates the fact that *energeia* is beginning to shift in meaning toward a broader notion of actuality, one capable of encompassing static conditions. Yet Aristotle is justified in continuing to use the same term, for *energeia* remains a kind of exercise of a capacity, even if it is no longer an *active* exercise. In effect he has chosen to give primacy to the term's correlation with *dunamis* over its etymological associations with activity. Later we will continue to trace the development of *energeia* as actuality. First we must examine how Aristotle systematically separated *energeia* from its early associations with motion and change.

THE ENERGEIA-KINĒSIS DISTINCTION

There is only one occasion where we find Aristotle reflecting on the evolutions of meaning undergone by *energeia*: the statement of *Metaphysics* IX.3 that "the word *energeia* has gone forth . . . from motions to other things, for *energeia* seems above all to be motion" (1047a30–32). We have already seen that *energeia* originally meant, not motion, but the exercise of a capacity. Nonetheless, since such an exercise usually involves motion or at least change, the two concepts were closely intertwined. We turn now to how and why Aristotle separated them.

¹³ See also *De Caelo* IV.I 307b32–33, IV.3 311a1–12. The *De Caelo* calls even the movement of a body to its proper place a "motion toward its own form" (IV.3 310a34).

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The first step toward the distinction appears in *Eudemian Ethics* 11.1.¹⁴ There Aristotle notes that in general the proper work ($\xi \rho \gamma o \nu$) of a thing is its end ($\tau \xi \lambda o \varsigma$) (1219a8). But, he adds, there are two types of case to consider. In the first type the *ergon* of the thing is distinct from its use, as a house is distinct from the act of housebuilding and health is distinct from the act of healing. (Here *ergon* might best be translated as "product.") In the second type of case they are not distinct. His examples are seeing, which is both the use and proper work of the sense of vision, and active thinking, which is both the use and proper work of mathematical knowledge (1219a13–17). It is a ready inference – though one Aristotle does not draw – that since in cases of the latter type the use is identical to the *ergon*, it is also identical to the thing's end. Applying the identity between use ($\chi \rho \eta \sigma \iota \varsigma$) and *energeia* (which is evident throughout the chapter), we could add that in such cases the *energeia* of the thing is identical to its end.

Aristotle draws precisely this conclusion in the famous passage of Metaphysics IX.6 stating the distinction between energeia and motion or change (κίνησις) (1048b18-34). He repeats the examples of the Eudemian Ethics and adds some new ones: on the one hand are housebuilding, becoming healthy, walking, making thin, and learning; on the other are seeing, thinking, understanding, living well, and flourishing. Actions of the first type are motions because each has a termination ($\pi \epsilon \rho \alpha \varsigma$) and so is not itself an end, but is ordered toward an end. Those of the second type are energeiai because each is an end, or, alternatively, because the end resides within it (ἐνυπάρχει τὸ τέλος, 1048b22). Because of this fundamental difference, the two classes also differ in a way revealed by a grammatical test. It is necessary to cease performing an action of the first type before one may be said to have performed it - e.g., one must cease building a house before one may be said to have built the house. By contrast, one at the same time sees and has seen, thinks and has thought, lives well and has lived well.

Precisely how to interpret this test has been a subject of much discussion. We shall return to that question, but first it will be helpful to examine the other major text bearing on the *energeia–kinēsis* distinction, *Nicomachean Ethics* x.3–4. Although this text is ostensibly about pleasure rather than *energeia*, there are a number of reasons why it has generally been regarded as elaborating the *energeia–kinēsis* distinction. The contrast it draws between

¹⁴ John Rist, *The Mind of Aristotle* (Toronto, 1989), 107–13, gives a different and more complex genealogy based on the development of Aristotle's theory of pleasure. That offered here has the advantage of simplicity, but the two are not incompatible.

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pleasure and motion is in several ways like that of *Metaphysics* IX.6; the contrast is illustrated by likening pleasure to sight, a paradigm case of *energeia*; and although it denies that pleasure is an activity, it does say that pleasure "completes the activity" (II74b23), so that pleasure and *energeia* are linked in an intimate way. Aristotle had held earlier that pleasure is an *energeia*, and it seems reasonable to view the theory of *Ethics* x as a refinement of that earlier account.¹⁵

In chapter x.3 Aristotle rejects the theory that pleasure is a motion based on what is sometimes called the "quickly-slowly test." Every motion may be said to occur at some rate, whether quickly or slowly, but not so in the case of pleasure:

For while we may *become* pleased quickly as we may become angry quickly, we cannot *be* pleased quickly, not even in relation to someone else, while we can walk, or grow, or the like, quickly. While, then, we can change quickly or slowly into a state of pleasure, we cannot quickly be in the actual state of pleasure ($\delta \nu \epsilon \rho \gamma \epsilon \tilde{\nu} \kappa \alpha \tau' \alpha \sigma \tau \eta \nu$), i.e., be pleased. (1173a34–b4)

The point hinges on a contrast of verbal aspects. The aorist passive infinitive $\eta \sigma \theta \eta \nu \alpha i$ (here translated "become pleased") indicates the change from nonpleasure to pleasure, whereas the corresponding present infinitive $\eta \delta \epsilon \sigma \theta \alpha i$ indicates, not a change, but simple continuance in the state of being pleased. The present infinitives for walking and growing, however, do indicate a change: the change intrinsic to the activity itself. One may be said to walk or grow quickly or slowly based on the temporal relations among the discrete stages recognizable within the process. For "being pleased" there are no such stages, and consequently no question of relative speed.

In the next chapter this distinction becomes the basis for a more general contrast between motion and pleasure. The chapter begins by remarking that pleasure is like sight in that it "seems to be at any moment complete, for it does not lack anything which coming into being later will complete its form" (1174a14–16). Clearly this assertion is closely related to the statement in *Metaphysics* IX.6 that whereas motions are incomplete, each *energeia* is an end or contains an end. The passage continues:

¹⁵ For pleasure as an *energeia* see *Top.* v1.8 146b13–19, *Nic. Eth.* v11.12–13; cf. *Protr.* B87 and *Mag. Mor.* II.7 1204b20–36. I believe that a progression can be traced from the early view that pleasure is a motion in the soul (*Rhet.* 1.11 1369b33–35, cf. *Rep.* 583e, *De An.* 1.4 408b1–18), through the view of the *Magna Moralia* that it is a motion and activity of the part of the soul in which one is pleased, to the view of *Nicomachean Ethics* v11 that it is an activity of one's unimpaired "state and nature" (with as yet no explicit denial that it is a motion), and finally to the polemic of *Nicomachean Ethics* x against the view that it is a motion, with the further assertion that it is not an activity but completes activity. Nothing hinges on that hypothesis here, however.

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For it [pleasure] is a whole, and at no time can one find a pleasure whose form will be completed if the pleasure lasts longer. For this reason, too, it is not a movement. For every movement (e.g., that of building) takes time and is for the sake of an end and is complete when it has made what it aims at. It is complete, therefore, only in the whole time or at the final moment. In their parts and during the time they occupy, all movements are incomplete, and are different in kind from the whole movement and from each other. (1174a17–23)

To illustrate how the parts of a movement are different in kind from the whole and from one another, Aristotle cites the examples of temple-building (the putting together of the stones differs from the fluting of the columns) and going for a walk (the various portions of the walk differ). He states of such partial movements that "the whence and the whither give them their form" (1174b5). He concludes by offering another and rather cryptic argument for his thesis that pleasure is not a movement: "It is not possible to move otherwise than in time, but it is possible to be pleased; for that which takes place in a moment is a whole ($\tau \circ \gamma \alpha \rho \ \ell \nu \ \tau \widetilde{\wp} \ \nu \widetilde{\upsilon} \nu \ \delta \lambda \circ \nu \ \tau i$)" (1174b8–9).

Combining these observations from the *Ethics* with those in *Metaphysics* ix.6, we arrive at the following table.

Kinēsis

- 1. Has a termination.
- 2. Is not an end, but is for the sake of an end.
- 3. Complete when it achieves what it aims at, i.e., during whole time or at final moment.
- 4. Must cease before perfect tense can apply.
- 5. Has parts which are different in kind from one another and from the whole; the "whence" and the "whither" give them their form.
- 6. Occurs quickly or slowly.
- 7. In time.

Energeia

I. Has no termination.

- 2. Is an end or has end within it.
- Complete at any moment because it does not lack anything which coming into being later will complete its form.
- 4. Present and perfect tense apply simultaneously.
- 5. Homogeneous.
- 6. Does not occur quickly or slowly.
- 7. In "the now."

Although there is much here that deserves comment, the most puzzling item is surely the last. For illumination we can turn to the discussion of time in the *Physics*. *Physics* IV.12 explains that for a movement to be "in time" means that it is measured by time (221a4–7). This is a stricter requirement than that of coexisting with time, as does even an eternal truth such as the incommensurability of the diagonal of a square. (Aristotle remarks that if