al identity. However, Shoemaker’s view is incomplete, as is demonstrated by its failure to achieve what Shoemaker claims it is capable of, i.e. not rely on any one physical mechanism for the realization of mental states. In order to reconcile Shoemaker’s functionalist view with its actual capabilities, it is necessary to constrict the theory slightly in the addition of a further demand that functional states be realized in a common physical mechanism. However, it is important to note that Shoemaker’s functionalist view relies on one physical mechanism for the realization of mental states only if the definition of ‘realization’ proposed in this paper is accurate. Although Shoemaker claims that the brain and the central nervous system are the mechanism in which personal identity is recognized in humans, he believes functionalism is abstract enough to account for identity in some alien species not possessing either mechanism. Though this may be true, it in no way allows for the transfer of mental states from one body to another, or the existence of mental states outside of their original mechanism.

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The image of the Divided Line in Plato's *Republic*, along with the allegory of the Sun and the Cave, is among the most studied in his thought. John Sallis notes that drawing the distinction between visible and intelligible, as is done in the Line, "coincides with the beginning of philosophy" (Sallis 424). Yet the meaning of the imagery Plato uses has been widely debated. Two issues in particular have puzzled scholars, namely the interpretation of the objects that correspond to the level of *dianoia* and the significance of the equality of the Line's two middle segments. While there has been much work devoted to these subjects, the analyses remain somewhat inconclusive. It is my contention that an attempt to answer these questions by focusing too narrowly on the Line itself loses the sense of the whole and that a wider view of the Line is necessary to understand it fully. What this view reveals is that the equality of the middle segments is intended to be implicit, because it represents the end of dialectic and the beginning of personal knowledge of the intelligible. Before we look through this broader lens, however, it is useful to examine what analytical interpretations of the Line have taught us, where they remain unsatisfying, and how they may have erred.

The method for constructing the Line that Socrates suggests to Glaucon at the end of the Republic's Book VI (509d) is familiar, and can be summarized as follows: the relation between the visible and the intelligible is like a line divided and then subdivided in the same ratio, such that it consists of four distinct segments, which can be called AB, BC, CD, and DE, moving from the highest (the largest) to the lowest (the smallest).¹ Socrates postulates four conditions in the soul that correspond to each line segment: understanding, thought, belief, and imaging, respectively. These mental states are separated vertically from their objects, which are placed on the other side of the line (Rep 511d-e). The objects corresponding to the AC segment are knowable and intelligible, while the objects attributed to the CE segment are visible and openable. The objects of DE, the lowest segment, are visible images of visible things, "first, shadows, then reflections in water . . . and everything of that sort." The objects of CD are the visible originals of those images, animals, plants, and "the whole class of manufactured things" (Rep 509d-e). The highest subsection, AB, is clearly intended to represent the Forms, but the segment below, BC, is trickier. The text that describes the division of the intelligible section (AC) reads as follows:

In one subsection, the soul, using as images the things that were imitated before, is forced to investigate from hypotheses, proceeding not to a first principle but to a conclusion. In the other subsection, however, it makes its way to a first principle that is not a hypothesis, proceeding from a hypothesis but without the images used in the previous subsection, using forms themselves and making its investigation through them.

(Rep 510b. emphasis original)

A critical concern is that the objects of BC, namely of *dianoia*, are somehow images, despite being formally denoted as knowables. Nicholas Smith helpfully catalogues the variety of suggestions for these objects, which include mental images of Forms, mathematical objects, mathematical realities, sciences, mathematical intermediates, figures, and even "visible originals, repeated from the subsection (CD) beneath this one (BC)" (Smith 32). The last view, advocated by Paul Pritchard in his monograph *Plato's Philosophy of Mathematics*, is based upon the equality of the middle segments, a characteristic of the Line that arises independently of the ratio in which the Line is divided. Pritchard interprets this feature to mean that the objects of BC are the same as those of CD, although now used as images of something else (Pritchard 92). He usefully points out that "though the states of mind in the Line are four, the ontology is only threefold, just as it is in book X" (Pritchard 94). This threefold pattern does recur throughout Plato's works; in addition to the three beds in the *Republic*, the events of the *Symposium* are also at a third remove from the original event, recounted by Aristodemus to Apollodorus, who then retells the story to an unnamed companion.

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What I shall adopt from the views of Smith and Pritchard, in addition to
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Burnyeat places a distinct emphasis on Socrates’ statement at 534a, that “as for the ratios between the things these are set over and the division of either the openable or the intelligible section into two, let’s pass them by, Glaucon, lest they involve us in arguments many times longer than the ones we’ve already gone through.” This sudden change of subject occurs several other times in the Republic, most notably at 533a, when Socrates says that Glaucon “won’t be able to follow [him] any longer” right when Glaucon would be seeing “the truth itself” rather than its image, in the discussion of dialectic. Rather than use this statement to discount any debate about ratios (particularly the equality of the middle sections), I would argue that its context suggests otherwise, namely that the equality of those segments constitutes the division of knowledge into that attainable through dialectic and that attainable only through introspection.

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cation for my interpretation. For Sallis, dianoia is “a distinguishing and
relating of ones,” as in counting, which is “the basis of Greek mathemat-
ic” (Sallis 432). This explains why dianoia is so often linked exclusively, and often equated, with mathematical thought. In order to understand it, one must recognize the distinction Sallis draws between upward-moving and downward-moving dianoia. The downward-moving dianoia is that of the warrior-guardian described elsewhere in The Republic, turned toward the visible side of the line and “concerned with ordering and measuring things in this domain” (Sallis 434). The upward-moving dianoia is that of the philosopher, turned away from the visible. This distinction also explains why the objects of the Line (and especially those of BC) are so often mis-
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The context of Socrates’ belittling of Glaucon at 533a, for Sallis, is that
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objects of mathematical study, but only the images such study requires (Smith 39). Mathematicians obviously have to use some visible forms as images, for example in drawing a triangle or square to illustrate a geometric theorem. The important thing is that the objects are recognized as images of the true triangle or the true square. The objects of BC are therefore the same as those in CD; in the latter, they were thought to be visible originals at the commonsense level, but in the former, they are recognized as intelligible images at the level of thinking. An important transition has occurred here, and Smith interprets it as analogous to leaving the Cave, in which there are also four stages (Smith 38).

It seems evident to me that the objects of BC must be images of some sort, especially because of the aforementioned etymology of the word *dianoia*. Interestingly, Smith notes that only a few other scholars agree; he lists four or five (Smith 40; See also n. 21 on pp. 32-33). With Smith's particular view, however, the objects of BC are not exactly the same as those of CD, as Pritchard claims, but are only the same sorts of objects, *at the same ‘remove’ from the reality of Forms* (Smith 38-39). Thus the identity of the objects is not as relevant as the way in which they are considered. Unfortunately, this leads Smith into a problem. Since each level of the line must correspond to a class of objects and a mental state clearer than the level below it, the objects of CD cannot be the same sorts of objects as those of BC. Rather than proposing an alternative interpretation, Smith suggests ignoring the equality of the middle segments. He goes on to suggest that *Plato might have purposefully woven this subtle flaw into the intricate fabric of his own image, because he wished to avoid the sin of perfection* (Smith 42-43). While imaginative to be sure, this interpretation is most likely unfounded, as Plato's dialogues are on the whole exquisitely crafted and quite possibly perfect.

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rather that, after putting so much of the discussion of the Good into images (the Sun, the Line, and the Cave) it is time to move on from them. It is also time for us to move forward from the discussion of images and to seek the intelligible.

Sallis argues that the Line’s middle segments cannot be equal in length. He notes that this equality is, for one thing, never explicitly stated (Sallis 415), which is exactly what Smith says about the "spatial comparison" between the Line and the Cave (Smith 28). In the context of upward-moving dianoia, Sallis says that the middle segments *could be equal only for one who remained stuck at the level of downward-moving dianoia,* and that we should instead move away from the visible (Sallis 440). The guardian at the level of downward-moving dianoia would not recognize the conflict between the ratio and Socrates' insistence that the lengths of the segments correlate with their degree of clarity and truth. Thus, Sallis claims that we should move "towards what shows itself through the line" (Sallis 440), to the intelligible.

I contend, however, that the equality of the middle segments, as it shows itself through the Line, fosters that move to the intelligible much more than any understanding of the particulars of dianoia does, because attending to the equality of the middle segments allows for reflection upon the mathematical theorem that is revealed. In this I am aided by Robert Wood, who explains in his book Placing Aesthetics:

When you are able to demonstrate that [the theorem that the central portions of a line so divided will always be equal] and reflect on what you have accomplished, you become aware of a basic distinction in experience between the particular visual object, drawn on paper and seen in the light by the eye, and the theorem, which is understood and demonstrated to apply to all lines constructed in the manner suggested: it is understood by the intellect “in the light of the Good.”

(Wood 45 emphasis original)

The theorem inherent in the Line has the additional property of appearing suddenly, as anyone who has had experience with inductive reasoning can attest. One can draw the line with a certain ratio (such as 3:1), perceive the equality of the middle segments, then draw another line with a different ratio (such as 4:1), and continue to change the ratio until at some point one recognizes that the middle segments will always be equal. This perception of a truth about the world, acquired through images, arises only out of inductive thinking, which I claim is at the level of upward-moving dianoia. Deductive reasoning, the logically formulated method of proof based on agreed-upon statements, is at the level of downward-moving dianoia and can only take us so far. Logical proof is certainly necessary for the development of mathematics, but no mathematician can formulate a proof without having the end in mind already. The understanding of the theorem that is being proved has to be acquired previously. This is also why the Line moves beyond mathematics to the Forms themselves.

As such, mathematical understanding as exemplified by upward-moving dianoia is quite important. The reflection at BC leads to episteme at AB, or “philosophic insight” (Wood 46). Wood's interpretation, especially when supported by Sallis, has the decided advantage of simplicity. The distinctions between the four segments are drawn in Plato's original text, and Wood only infers an aspect of the Line, the equality of the middle segments, that surely would have been noticed by any Greek mathematician.

Another problem that my interpretation resolves is that of unity. Smith's view that the Line contains a flaw in its very construction contradicts the whole premise of the Republic, which is that harmony and proportion are valued because they lead to the Good. Justice, as it appears in the city and the soul, is predicated on the harmonization of the individual parts. Proportion is thus similarly important in the Line, which also leads to the Good. As Burnyeat also points out, unity is the first principle of number (Burnyeat 75), again justifying the content and place of dianoia. The combination of different line segments, or units, will sum to a line segment equal to the total length of the various parts; this is perhaps the origin of Plato's need to understand the parts before understanding the whole, and it is why I have elaborated upon each section of the Line before looking to the whole.

The question is now what it means to have a mathematical theorem implied by the construction of the Line. Ian Hacking, in discussing the Meno, notes that "what impressed Plato . . . is that by talk, gesticulation, and reflection, we can find something out, and see why what we have found out is true" (Hacking 94). The theorem and its content are not as important as the discovery of the theorem in general. Finding it is moving from BC to AB in the line - moving upward to dialectic. As Socrates says, “whenever someone tries through argument and apart from all sense perceptions to find the being itself of each thing . . . he reaches the end of the intelligible” (Rep 532a). Like a proof in Euclid's Elements, the mathematician is able to abstract from sense perceptions. This transcendence of context is why the notion of making theorems is the central insight of the Line, and thus also why the middle segments must be equal.
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2: Wood’s interpretation also resolves the issue of circularity raised by Lynne Ballew in her book Straight and Circular: A Study of Imagery in Greek Philosophy, which is unfortunately outside the scope of this paper.
Although understanding the theorem transcends context, it must be expressed through images. Illustrating the theorem to another person requires an image of the particular, just as expressing an idea to another person requires a particular use of language. Even though we personally might be able to understand truth, we can only express it through language. Although the Line marks the beginning of philosophy by drawing the distinction between the visible and the intelligible, it only shows us what that distinction is like. The real problem lies with language in general, which cannot ever fully express truth. In Book II of the Republic, Socrates distinguishes true falsehoods from falsehoods in words, the former meaning the common notion of a lie and the latter referring to the nature of words as never being what they represent. The word “dog” is not a dog. Yet a more prominent problem is that, even apart from considerations of language, the Line itself can only take us so far, because in Plato truth always appears suddenly.

The Line presents a step-by-step pathway to reaching the Good, just as Socrates provides a rigorous process for the education and training of the guardians. The final apprehension of truth, however, does not come through this gradual path, but, after its completion, “is suddenly generated in the soul like a torchlight kindled by a leaping flame” (Seventh Letter 341d). The sudden appearance of truth is also present in the Symposium, in Diotima’s speech about love. She tells Socrates (who then relates it to the party guests) that “the person who has been instructed thus far about the activities of Love, who studies beautiful things correctly and in their proper order, and who then comes to the final stage of the activities of love, will suddenly see something astonishing that is beautiful in its nature” (Symposium 210e). This is precisely how one would apprehend the Good: through careful education, the cultivation of harmony and virtue in the soul, and the stages of the Line. Only after all this does the revelation of beauty, or truth, suddenly appear. In the same way, the apprehension of a mathematical theorem involves this sudden flash of insight into truth.

An important aspect of the Line, however, is the notion of giving an account of what one has understood. Plato's allegorical figure descends back into the Cave, compelled to share his knowledge with those “who have never seen justice itself” (Rep 517e). The philosophical project depends on this sharing of ideas, this attempt to express one’s own understanding, because truth arises out of dialectic and dialogue with others. Although knowledge of the Forms (philosophic knowledge) cannot be articulated in the public language of written and spoken symbols, it can be expressed by “an internal logos structured by an awareness of the Forms themselves” (Sayre 192).

Under this interpretation, the role of the objects of dianoia becomes even clearer. As Sallis has pointed out, upward-moving dianoia at line segment BC leads us to the objects of AB, the Forms themselves. The Line, therefore, is what helps to create this awareness of the Forms. I would like to expand upon one of Sayre’s points, however. Even though direct knowledge of the Forms may not be able to be articulated through language, Socrates’ attempt to demonstrate what they are like is enough for the philosopher to accomplish. Otherwise, the purpose of images and metaphors in Plato’s dialectic would be unclear. Sayre’s point that “philosophic knowledge cannot be expressed in the form of theories” (Sayre 193) is well taken nonetheless. This is why, as has often been noted, Plato wrote in dialogues, in which truth is contextualized.

Plato himself also follows the prescription that he gives for philosophers. Paul Friedländer writes that “to lead to a vision of the Idea and a hint of the highest good is Plato’s task” (Friedländer 64). The word hint is telling, because it encapsulates everything that I have been discussing. Language and discourse, useful as they are, can only give us a glimpse of the Good, and we can only move so far through the Line, which is, after all, only an image. Even Plato requires dialectic in order to be understood, which is why philosophy classes discuss his works and scholars endlessly debate interpretations. What the implicit dialectic of this paper has shown, through engaging these scholars, is that the equality of the middle segments allows us to understand a mathematical theorem, the very positioning of which helps us to grasp the relation between dialectic and personal knowledge. Yet our own instantaneous realization of the theorem, appearing as suddenly as it does, marks also the “end of the road” for dialectic in favor of introspection. Reflecting about that, we can move past images to a higher knowledge of the intelligible.

With the Republic, Plato created a dialectical masterpiece in which every word is important to understanding the whole. Through his use of images in the dialogue, he is able to explain and justify why we can only express truth through contextualized images and language; he uses words and images to tell us why words and images are inadequate. Yet our own personal introspection makes us able to understand, at least up to a point, what Plato is trying to express. This is the genius of the Divided Line and the dialogue as a whole.

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3: Although the authenticity of the letter has been questioned, most recent scholarship has favored acceptance of the letter into the Platonic corpus.
Although understanding the theorem transcends context, it must be expressed through images. Illustrating the theorem to another person requires an image of the particular, just as expressing an idea to another person requires a particular use of language. Even though we personally might be able to understand truth, we can only express it through language. Although the Line marks the beginning of philosophy by drawing the distinction between the visible and the intelligible, it only shows us what that distinction is like. The real problem lies with language in general, which cannot ever fully express truth. In Book II of the Republic, Socrates distinguishes true falsehoods from falsehoods in words, the former meaning the common notion of a lie and the latter referring to the nature of words as never being what they represent. The word “dog” is not a dog. Yet a more prominent problem is that, even apart from considerations of language, the Line itself can only take us so far, because in Plato truth always appears suddenly.

The Line presents a step-by-step pathway to reaching the Good, just as Socrates provides a rigorous process for the education and training of the guardians. The final apprehension of truth, however, does not come through this gradual path, but, after its completion, “is suddenly generated in the soul like a torchlight kindled by a leaping flame” (Seventh Letter 341d). The sudden appearance of truth is also present in the Symposium, in Diotima’s speech about love. She tells Socrates (who then relates it to the party guests) that “the person who has been instructed thus far about the activities of Love, who studies beautiful things correctly and in their proper order, and who then comes to the final stage of the activities of love, will suddenly see something astonishing that is beautiful in its nature” (Symposium 210e). This is precisely how one would apprehend the Good: through careful education, the cultivation of harmony and virtue in the soul, and the stages of the Line. Only after all this does the revelation of beauty, or truth, suddenly appear. In the same way, the apprehension of a mathematical theorem involves this sudden flash of insight into truth.

An important aspect of the Line, however, is the notion of giving an account of what one has understood. Plato’s allegorical figure descends back into the Cave, compelled to share his knowledge with those “who have never seen justice itself” (Rep 517e). The philosophical project depends on this sharing of ideas, this attempt to express one’s own understanding, because truth arises out of dialectic and dialogue with others. Although knowledge of the Forms (philosophic knowledge) cannot be articulated “in the public language of written and spoken symbols,” it can be expressed by “an internal logos structured by an awareness of the Forms themselves” (Sayre 192).

Under this interpretation, the role of the objects of dianoia becomes even clearer. As Sallis has pointed out, upward-moving dianoia at line segment BC leads us to the objects of AB, the Forms themselves. The Line, therefore, is what helps to create this awareness of the Forms. I would like to expand upon one of Sayre’s points, however. Even though direct knowledge of the Forms may not be able to be articulated through language, Socrates’ attempt to demonstrate what they are like is enough for the philosopher to accomplish. Otherwise, the purpose of images and metaphors in Plato’s dialectic would be unclear. Sayre’s point that “philosophic knowledge cannot be expressed in the form of theories” (Sayre 193) is well taken nonetheless. This is why, as has often been noted, Plato wrote in dialogues, in which truth is contextualized.

Plato himself also follows the prescription that he gives for philosophers. Paul Friedländer writes that “to lead to a vision of the Idea and a hint of the highest good is Plato’s task” (Friedländer 64). The word hint is telling, because it encapsulates everything that I have been discussing. Language and discourse, useful as they are, can only give us a glimpse of the Good, and we can only move so far through the Line, which is, after all, only an image. Even Plato requires dialectic in order to be understood, which is why philosophy classes discuss his works and scholars endlessly debate interpretations. What the implicit dialectic of this paper has shown, through engaging these scholars, is that the equality of the middle segments allows us to understand a mathematical theorem, the very positioning of which helps us to grasp the relation between dialectic and personal knowledge. Yet our own instantaneous realization of the theorem, appearing as suddenly as it does, marks also the “end of the road” for dialectic in favor of introspection. Reflecting about that, we can move past images to a higher knowledge of the intelligible.

With the Republic, Plato created a dialectical masterpiece in which every word is important to understanding the whole. Through his use of images in the dialogue, he is able to explain and justify why we can only express truth through contextualized images and language; he uses words and images to tell us why words and images are inadequate. Yet our own personal introspection makes us able to understand, at least up to a point, what Plato is trying to express. This is the genius of the Divided Line and the dialogue as a whole.

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**An Interview with Dr. Jakko Hintikka**

**DR. JAAKKO HINTIKKA** was born on January 12, 1929, in Vantaa, Finland. He received his Ph.D. in Philosophy from the University of Helsinki in 1956. Since then, he has revolutionized the field of philosophy of logic, and is recognized as one of the creators of game-theory semantics. He has written over 30 books and contributed to innumerable periodicals. Most recently, he has completed valuable work in the logical analysis of modal concepts. He currently teaches at Boston University.