



## Signs and Portents: No Parking in the Courtroom

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# SIGNS AND PORTENTS: NO PARKING IN THE COURTROOM\*



SHIRA LEIBOWITZ AND ROALD HOFFMANN

Criminal File 676694-3, parking violation, decided in the Supreme Court of the State of Israel, before Justices Israel, Levi, and Cohen, in the matter of Mr. Rodef Zedek, Appellant versus the Israel Police, Respondent.

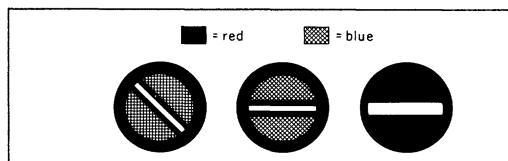
The Appellant alleged that a parking ticket issued by the Israel Police was invalid. The Beer Sheva District Court rejected his plea of not guilty. Zedek appealed to the Israel Supreme Court, which agreed to hear the case because of the far-reaching implications for the issue of public disobedience, the incidence of which has increased in frequency recently.

## 1. Circumstances of the Case

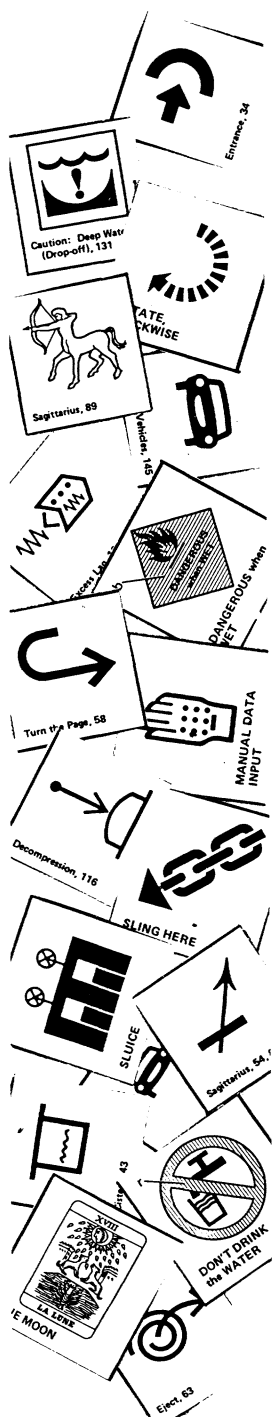
The alleged crime took place June 1, 1989, at 5:40 pm on Ben-Gurion Blvd., Beer Sheva, Israel. Both Appellant and Respondent agreed that Zedek parked his beige Subaru minibus next to a traffic sign, in front of the Ben-Gurion University Library.

The geography of the site is shown in figure 1. Note the traffic sign, whose significance is the pivotal issue in this case. A photograph of the site, taken some time after the alleged violation [fig. 2], was submitted in evidence.

The ambiguous sign derives from a standard international “No Parking, No Standing” sign, henceforth to be denoted as “No Standing,” illustrated below at left. The ambiguous sign is in the middle, flanked at right by a “No Entrance” sign. The sign at the scene of the crime was incorrectly positioned, rotated by 45 degrees counterclockwise (= 135 degrees clockwise, given the symmetry of the symbol). The lower court prosecutor elicited in his examination that Zedek’s evidence (a sketch made 11 days after the alleged violation, and the photograph, fig. 2, made three months later) postdated the violation. The judges viewed this line of reasoning with skepticism, thinking it unlikely that the Israeli police would remount the sign incorrectly after a violation.



\*A fictionalized version of a real case, tried in an Israeli Court, Beer Sheva, on June 10, 1990. The names have been changed to protect the guilty.



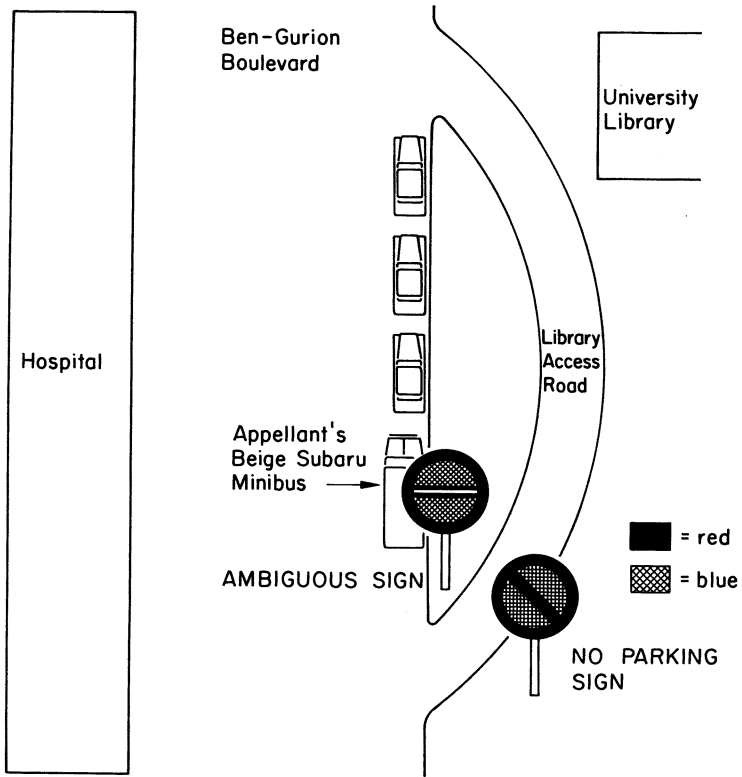


Figure 1. Diagram of site of alleged violation.



Figure 2. A photograph of the site, showing at extreme left a piece of Zedek's minibus parked at the scene of the supposed transgression.

Zedek claimed that he perceived the sign as ambiguous. He hypothesized it was an Israeli innovation in traffic sign design, based on Jewish tradition, and meant “no entrance to this library access road, except for scholars” or some such message. Jewish tradition is replete with examples of legal restrictions being waived in order to facilitate scholarship,<sup>1</sup> and therefore this, he felt, was a reasonable hypothesis.

The police claimed that Zedek should have realized that it was a misposted, rotated “No Parking, No Standing” sign. Zedek countered that his belief in the infallibility of the police was so strong that such a hypothesis never entered his mind.

## 2. *Argument of the Appellant*

While the facts of the case were reasonably clear, Zedek begged the court’s indulgence in allowing a discussion of the broader issue of signs and symbols, so as to justify his appeal. The court, after some debate, permitted his unusual multimedia presentation. In doing so it took cognizance of the symbolic nature of the existence of the State of Israel itself, the critical role of signs in the Pentateuch, and the overriding importance of parking to scholars.<sup>2</sup>

### *Hockney, Caillebotte, and Maimonides*

Zedek set the stage with a discussion of an artwork by David Hockney. The last and largest (6 feet by 9 feet) of Hockney’s photcollages, it is titled *Pearblossom Hwy. 11–18th April 1986* and depicts a California highway that runs through Mojave town northeast of Los Angeles [fig. 3]. David Hockney, born and educated in the United Kingdom, active as an artist there and in the United States, turned in the eighties to photomontage—the assemblage of photographs, Polaroid or cheaply processed still camera images, into complex collages. Hockney’s photcollages are an independent interpretation of a cubist perspective—the individual images, sometimes disjoint, follow the movement of the roving eye. They light upon incidental detail (oil cans, beer bottles), conflate space and time (the place to turn, the signs out of proportion). Though *Pearblossom Highway* seems serenely and totally devoid of human or vehicular motion, Hockney’s photomontage makes us move, quickly, on the road.<sup>3</sup>

This collage is symbolic of our century, Zedek noted. Life in California (or Beer Sheva), with its debilitating dependence on the internal combustion engine, is the most extreme manifestation of our addiction to cars and the need for traffic signs to control their use.

Compare the Hockney picture with *Paris, A Rainy Day* [1877, fig. 4] by Gustave Caillebotte. Caillebotte was a young and wealthy member of the Impressionist School. For a long time he was known primarily as a financial supporter and collector of Monet, Renoir, and Pissarro. In recent years his oeuvre has been appreciated on its own. J. Kirk

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1: Many exceptions are made to encourage scholarship in Jewish law, halakha. For example, scholars are exempt from certain taxes and responsibilities. See *Maimonides, Laws of Talmud Torah* 6.10.28. For present-day application see A. Lichtenstein, “Ideology of Hesder Yeshiva,” *Tradition* 19.3 (1981): note 23.

2: A former president of the University of California at Berkeley, Clark Kerr, said, “I have come to the conclusion that there are three great problems at Berkeley and they are: sex for the students, athletics for the alumni, and parking for the faculty.”

3: See Christopher Knight, “Composite Views: Themes and Motifs in Hockney’s Art,” and Anne Hoy, “Hockney’s Photcollages,” in *David Hockney, David Hockney: A Retrospective* [Los Angeles: Los Angeles County Museum of Art and Harry Abrams, 1988].



Figure 3. David Hockney, Pearblossom Hwy. 11–18th April 1986, #2, 1986, *Photographic Collage*, 198 x 222 cm, ©David Hockney. Reproduced by permission from David Hockney, *A Retrospective*, Los Angeles County Museum of Art and Harry N. Abrams, Los Angeles, 1988.



Figure 4. Gustave Caillebotte, French, 1848–1894, Paris, *A Rainy Day*, 212.2 x 276.2 cm, 1877, Art Institute of Chicago, Charles H. and Mary F. S. Worcester Collection, 1964.336. Photograph ©The Art Institute of Chicago. All rights reserved.

T. Varnedoe has characterized Caillebotte's vision as shaped "by a strong psychological involvement in his themes and a tensely willful discipline in his work."<sup>4</sup> The strong contention of a complicated perspective, the diverse, independent motions of alienated human beings, the city behind and within their lives, are apparent in this painting.

Paris of the time was a bustling, dirty, and lively city, filled with commercial signs reaching out for the consciousness of the inhabitant/visitor. But traffic signs apparently were as absent a century ago as they are ubiquitous today; none appear in this Parisian scene. They would have been useful. Perhaps they might have saved the life of Pierre Curie, run over, umbrella in hand, by a Parisian horse cab in 1906.

[The judges grew restive at this point, and the court record includes a discussion among them on the price of tea in China, an unidentified quote on "The flowers that bloom in the spring, Tra la," and the advisability of allowing appellants to represent themselves. Justice Levi reminded his fellow justices that art is a mirror of life, and that they should forbear, and give the Appellant the right to digress, a custom of scholars.]

Zedek continued, pointing out that traffic signs were hardly a modern invention. In order to direct traffic to the biblical cities of refuge [Deut. 19:7] Maimonides rules that signs be posted: ". . . refuge, refuge was written on each crossroad so [those seeking refuge] should know where to turn" [Maimonides, bk. 11, 8.5.237].

The interpretation of signs depends upon an agreement that a given configuration of geometric elements conveys a specific message. Once this configuration is altered, new messages became possible. Zedek turned to biblical commentaries to help him interpret the misposted sign.

#### *Ramban, A Typology of Symbols, and the Rainbow*

The medieval Spanish-Jewish philosopher and physician Ramban, or Nachmanides (Rabbi Moshe ben Nachman, whose initials in Hebrew form the name Ramban, was born in Gerona, 1194) posits two different modes of symbol interpretation. His discussion is a commentary on the post-diluvian biblical rainbow described in Genesis [9:12]: ". . . My bow I have set in the cloud, and it shall be for a token of a covenant between Me and the earth . . . that the waters shall no more become a flood to destroy all flesh."

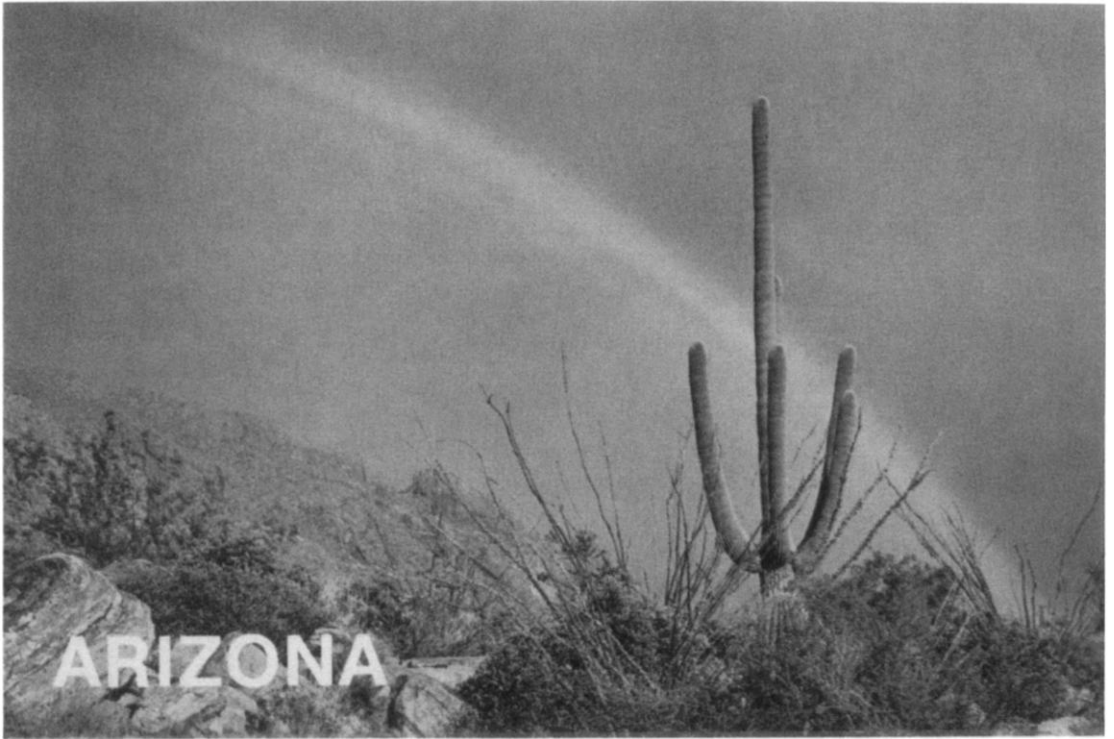
*Type I: Concrete Signs.* Ramban offers two ways of interpreting the rainbow. The first is as follows:

*Concerning the meaning of this sign, He [God] has not made the rainbow with its ends bent upwards [U-shaped] because it might have appeared that arrows were being shot from heaven, as in the verse, 'And He sent out his arrows and scattered them on the earth' (Psalms 18:15). [136–38]*

The reference to the Psalms relates arrows shot from a bow to rain pouring from the heavens, a biblical metaphor indicating God's anger. The symbol for the Hebrew month of Kislev, with its heavy rains, is the November/December zodiac sign Sagittarius, a centaur drawing his bow to release an arrow.

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4. J. Kirk T. Varnedoe, "In Detail: Gustave Caillebotte's Streets of Paris." Portfolio 1.5 (1979/80): 42–46; J. Kirk T. Varnedoe, *Marie Berhaut, Peter Galassi, and Hilarie Faberman, Gustave Caillebotte* [Houston: Museum of Fine Arts, 1976].



*Figure 5. Two representations of rainbows. Top: Saguaro Cactus and Rainbow, Photograph by Ray Manley, Petley Studios, Tempe, Arizona. Bottom: US Postage Stamp, "Special Occasions" series, issued October 22, 1988. One of them has something wrong with it, but that can be seen only in color [see Raymond Lee and Alistair Fraser, "The Light at the End of the Rainbow," New Scientist 1 Sept. 1990: 40–44].*

Ramban continues to explain why the bow is not U-shaped:

*Instead, He made the rainbow the opposite of this [with the ends bent downwards], in order to show that they are not shooting at the earth from the heavens. It is indeed, the way of warriors to invert the instruments of war which they hold in their hands, when calling for peace from their opponents. . . . [136–38]*

This is the first mode that Ramban offers for interpreting signs; the rainbow represents something in our reality, proffered by God as the sign of the covenant He is making. This Type I mode could be called the concrete (or real, representational and direct) mode.

Signs that fall into this category (for example, the traffic sign for “school crossing”) in general need little explaining, because most humans share the same reality to which the symbol refers. Or so we’d like to think. There is some cultural ambiguity, Zedek admitted, so that a sign for a women’s bathroom might not be effective in a society where women do not wear dresses, or when men might wear clothing resembling skirts, as in Scotland.

*Type II: Abstract or Symbolic Signs.* Ramban continues addressing the question of why God chose the rainbow to signify the covenant and, not satisfied with the first explanation, offers another one. The second mode of interpretation is abstract, and depends upon a pure convention or agreement between people (or between God and people). This will be called the Type II symbolic (or abstract, arbitrary, convention-dependent) mode.

Ramban cites examples of such arbitrary signs:

*And should you want to know how the rainbow can be a sign, the answer is that it has the same meaning as the verse, “This stone-heap be witness, and this pillar be witness” (Gen. 31:52) likewise “For these seven lambs shalt thou take of my hand, that it may be a witness unto me.” (Gen. 21:30). Every visible object that is set before two parties to remind them of a matter that they vowed between them is called a ‘sign’ and every agreement is called a “covenant.” Similarly, in the case of circumcision, He said, “And it shall be a token of a covenant between Me and you” (Gen. 17:11). . . . [1:136–38]*

In Ramban’s first example, the stone-heap and pillar sealed a peace agreement between Jacob and his treacherous father-in-law Laban. The lambs in the second example also signaled a peace pact. Abraham and Abimelech made an oath to end hostilities at a place which was subsequently called, because of this oath, Beer Sheva. The third example is the covenant of circumcision.

According to this Type II mode, the objects in the examples are irrelevant to the content of the covenant; for example, the stone-heap could have been a tree. Similarly, there is no special meaning in the rainbow *per se*, or in its colors, shape, or substance; the medium is irrelevant to the message [Leibowitz 86–87].

We use such abstract Type II symbols frequently. In particular, all signs containing writing are, by definition, symbolic, since alphabets (or word sounds) are arbitrary. Within a literate subculture sharing a language they shade over to direct. Nevertheless, Zedek wondered, what would Ramban make, even if he knew English, of signs such as “Soft Shoulders Ahead,” “Gap in Verge,” or “Kiss ’n Ride”?

After outlining this typology, Zedek used it to explain how he, the thinking driver/parker, interpreted the traffic sign in question. A standard “No Standing” sign definitely belongs to the abstract Type II category, because there is nothing in it which relates to the reality of parking or standing. In contrast, the horizontal bar of a “No Entrance” traffic



sign puts it into the concrete Type I category, because in human experience a horizontal is used to prevent entrance—old fashioned door bolts, railway crossing bars, gates. The rotation of the white bar of the sign in question, from a diagonal position to a horizontal one, changed the sign from the abstract type into the concrete type of symbol; it became to Zedek more like a standard “No Entrance” sign (Type I).

When faced with new or ambiguous signs, every individual must reach some judgment as to the meaning of the sign. A calculus of similarities rather than identities was required, and this may be constructed using the notion of “fuzzy sets” [see Zadeh; and Karkowski and Mital].

[Zedek was about to launch into an exposition of recent advances in fuzzy set theory made by his brother-in-law’s cousin, when he noticed signs (direct) of impatience from several of judges. So he rested his case.]

### 3. *Argument of the Respondent*

Arguing on behalf of the police, a sergeant continued the discussion of sign theory that the Appellant had begun, chiding Zedek for his outdated citations. Although Ramban’s words were timely and timeless, his last publication was about the year 1260!

Being a dyed-in-the-wool ex-intelligence officer, the sergeant would remove the gray areas of uncertainty surrounding the sign’s meaning by using color decoding theory. He cited Umberto Eco’s distinction between the private idiosyncratic view of color and the shared public world of color. Eco states this with a flourish: “My personal relationship with the colored world is a private affair as much as my sexual activity, and I am not supposed to entertain my readers with my personal reactivity towards the polychromous theater of the world” [157–75]. Therefore we must unravel the puzzle of the sign, putting aside our own color predilections. The sergeant continued to echo the linguist/author: “Human societies do not only speak of colors, but also with colors. We communicate with flags, traffic lights, road signs.”

The Optical Society of America says humans can distinguish 10 million colors! Thus, a traffic control language that would be richly expressive *could* be composed. But subtlety is not what will stop a 70-mph Mack truck. Therefore, the 116 official Israeli road signs utilized only five colors.

These 116 signs are categorized by color and shape into warning, informative, regulatory, and prohibitory groupings. The disputed “No Standing” sign belongs to the regulatory group with blue backgrounds. By no stretch of the imagination could it be categorized with red prohibitory signs. Of these there are *only two* because they involve life-and-death situations: “No Entrance” and “Stop.” Thus Zedek could not casually confuse the disputed sign with a red “No Entrance” prohibition.

Colors, too, convey different messages, according to Ramban’s scheme. The red in the Ethiopian flag is an abstract Type II representation indicating faith, and in the Dahomey emblem—soil [see Weitman]. But in most flags red expresses the bravery associated with blood and, for the same reason, in traffic signs red means danger. This is a Type I representation: blood → red → danger. Unless Zedek wants to opt out of his cultural context, he couldn’t confound a blue sign that merely regulates the flow of traffic (and is Type II, symbolic) with a red sign (Type I, concrete), which prevents a driver from heading to his death down a one-way street.

The dual coding by signs of color *and* shape ensures that messages are communicated even if the colors fade, because the geometry of the sign remains intact. And vice versa, if the geometry alters as in the disputed sign, the colors remain clear transmitters of the police’s message not to park. The Respondent thus reaffirmed the police’s judgment that a transgression of the law had occurred.

#### 4. Justice Israel's Opinion

Justice Israel [see biography in inset box] opened his decision by noting that Ramban's mode of sign analysis applied as well to representations of reality in the modern science and technology that evoked the sign structure that in turn provoked this case. By looking

Justice Dan Israel, born in Padua, first studied chemistry and biology at Hebrew University. His brilliant research on hydrophobic bonding in proteins was, however, so devastatingly criticized by a biochemist that the sensitive young man switched fields to the law. His dislike for adversative rhetoric pushed him towards the role of a judge, and he soon began a rise through the lower courts, culminating in an appointment to the Supreme Court in 1983.

at representation in modern science, the justice continued, we will be guided to the way in which observant drivers such as the Appellant (a lapsed scientist, the holder of several degrees, as questioning elicited) should deal with ambiguity.

That Jewish legal processes should partake of the reliable knowledge of science is made clear by Maimonides's specification of the qualities of judges:

*Only wise and intelligent men, who are eminent in Torah scholarship and possess extensive knowledge, should be appointed members of either the supreme or lower courts [lit. the Great or*

*the Small Sanhedrin]. They should be somewhat aware of such branches as medicine, mathematics, astronomy, forecasting constellations, astrology, methods of soothsayers, augurs and wizards as well as idolatrous superstitions, and the like, in order to be competent in dealing with them. [Maimonides, "Laws of Judges" 298]*

It is essential to the scientific enterprise that physical, chemical, and biological observables be represented, whether it is by a variable in an equation ( $F = ma$ ) or a chemical formula ( $H_2O$ ), or a picture of a kidney glomerulus. Questions of the reality or faithfulness of such representations ensue: What is mass? Does the water molecule or the glomerulus really look that way? Is it of issue to see what either of these "really" does look like? [See Hoffmann and Laszlo.]

Ramban's classification is actually a useful analytical tool, Justice Israel said, in determining the range of ambiguity in various representations in science.

Let us take, as an example, water. The substance is essential to life, especially to the region where the Appellant lives. It has been the object of human contemplation ever since the events preceding the rainbow passage explicated by Ramban.

There is a problem in representing water because (a) it is a liquid; (b) in small amounts it is colorless and takes on the hue of its container; (c) in large volumes it is colored, due to what we now recognize is an overtone of a certain molecular vibration. But its color in nature depends on its environment (contrast the North Sea in storm vs. the coral atoll of Bora Bora); (d) we have at hand under normal climatic conditions three phases of this substance—liquid, ice, and steam; (e) chemists want to know its microscopic molecular structure,  $H_2O$ , and how it aggregates in the solid and liquid phases. And that's not easy to see.

The justice presented a list of various representations of water, to be analyzed according to Ramban's typologies.

1. A photograph of water.
2. An artistic representation of the liquid.
3. Two representations of water in old textbooks.
4. The word for water in various languages.
5. The formula  $H_2O$ .
6. A structural formula of the water molecule.
7. A dynamic model of liquid water in a computer.

1. A photograph [fig. 6] is an approximate, two-dimensional representation (of a three-dimensional object) taken using a camera (which utilizes a lens that may sensibly and in a controlled manner distort the scene used) and developed and printed on paper. The dark areas are a second-generation (a negative intervened) representation of where light hit the film (clumps of silver grains in the negative) and where it did not (no silver grains). As anyone who has developed a film knows, a wide range of manipulation of the image is available to the photographer. And these considerations do not include modern computerized image modification. Given all this capacity for intervention and manipulation, it's remarkable that the image remains as Type I, direct, as it does.<sup>5</sup>

A little reflection (yes, the light and angle matter) shows that the iconicity of representing this primordial liquid depends more on the container or surroundings than on the water itself. A close-up of a small piece of figure 6 quickly becomes an abstract, unassignable image.



*Figure 6. "Like Watercourses in the Negev" (Psalm 126). A photograph of a ritual women's bath (mikva) in Beer Sheva, Israel.*

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5. For a highly instructive discussion of seeing in science see Ian Hacking, *Representing and Intervening* [Cambridge: Cambridge UP, 1983], esp. chap. 11, "Microscopes."

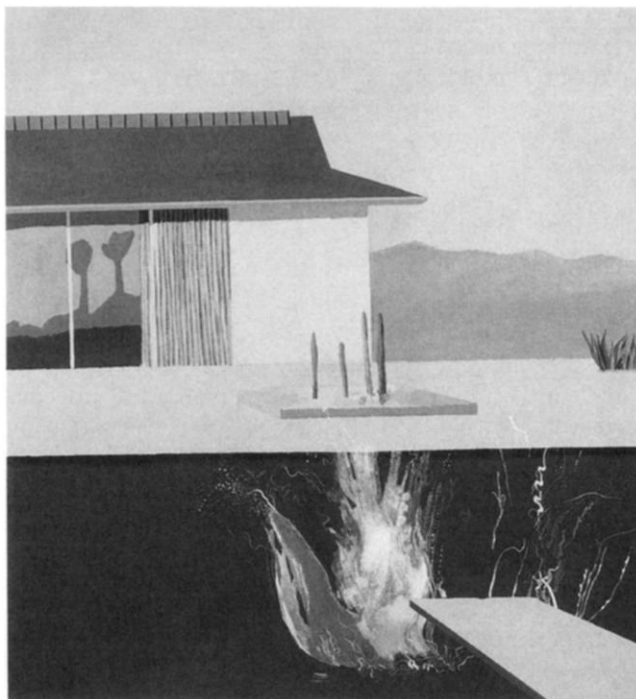


Figure 7. David Hockney, *The Splash*, 1966, Acrylic on canvas, 183 x 183 cm, collection of Mr. and Mrs. Norman Pattiz, ©David Hockney. Reproduced by permission from David Hockney, *A Retrospective*, Los Angeles County Museum of Art and Harry N. Abrams, Los Angeles, 1988.

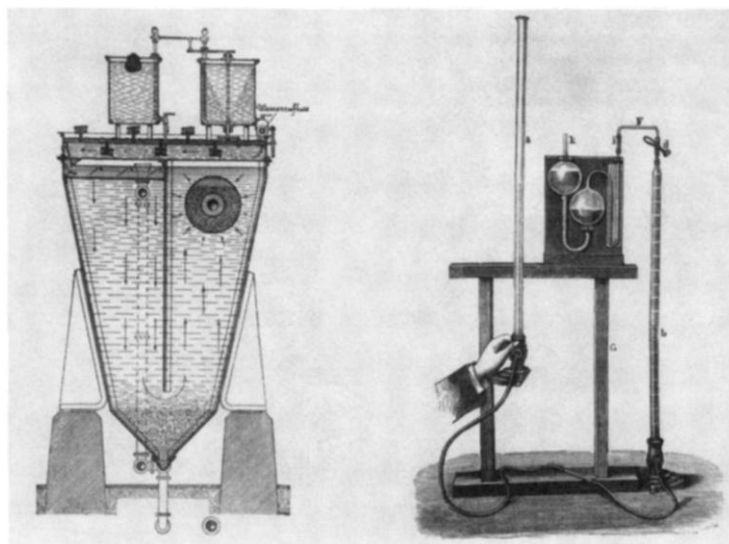


Figure 8. Two nineteenth-century illustrations of water in the laboratory. Left: a water purification system. From Felix B. Ahrens, ed., *Sammlung Chemischer und Chemisch-Technischer Vorträge* [Stuttgart: Enke, 1900] 5:177. Right: a gas analysis system. From Adolphe Carnot, *Traité d'Analyse des Substances Minérales*. [Paris: Dunod, 1848] 1:943.


2. David Hockney has been drawn to water throughout his career. Representations of swimming pools, in various media, abound in his paintings. *The Splash* [fig. 7] is typical (great) Hockney: wide areas of color, a rather flat representation with minimal perspective, somewhere between abstract and realistic, “cool” (but therefore hot in emotional undertones), a sense of action or movement evoked by an almost cartoon-like schematic essence. There could not be a human figure in this painting, could there?

The Hockney painting is firmly positioned in between Type I and Type II categories. It’s “representational” in a minimal way, abstract in many others, beyond the ways in which any painting is not real.

3. Figure 8 reproduces two illustrations of water from nineteenth-century chemistry texts. The general features of such old scientific illustrations are described adequately in the following lines from a lesser contemporary American poet:

*If you look in old chemistry books  
you see  
all those line cuts  
of laboratory experiments  
in cross-section.  
The sign for water  
is a containing line, the meniscus  
(which rarely curls up the walls of the beaker),  
and below it  
a sea  
of straight horizontal dashes  
carefully unaligned vertically.  
Every cork or rubber stopper  
is cutaway.  
You can see inside  
every vessel  
without reflections, without getting wet,  
and explore every kink  
in a copper condenser.  
Flames are outlined cypresses  
or a tulip at dawn,  
and some Klee arrows  
help to move gases and liquids the right way.  
Sometimes a disembodied hand  
holds up a flask.  
Sometimes there is an unblinking observer’s eye. . . . [Hoffmann 55–56]*

This poem goes on to point to a surprising loss in understanding as one moves from abstract to concrete representation. The meniscus and dashed lines in figure 8 are minimally concrete. It’s interesting to speculate, though, to what extent this symbolism derives from the medium (woodcut or engraving) used from 1450 to 1900 to reproduce images.<sup>6</sup> The intermittent, broken, dashed line is at the heart of this representation.

4. The word for water is, of course, arbitrary. The English expression derives from the Nordic *vatten*, German *wasser*. The word is old, and differs in other languages, *voda* (Russian), *eau* (French), *aqua* (Latin), *shui* (Mandarin). The English letter M comes from the ancient Phoenician/Hebrew letter *mem*, written , which symbolized the first

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6. For an illuminating discussion of the interaction of graphic media and art see William M. Ivins, Jr., *Prints and Visual Communication* [Cambridge: MIT P, 1969].

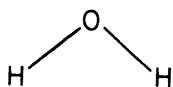
syllable of the Hebrew word for water, *mayim*. It's an example of an acrophonic (acro = outermost) alphabet, where an object is pictured, in this case water as waves, and that picture represents the sound of the first consonant of the word [Naveh 181]. The waves of water stood for "m" in ancient Hebrew, and in Hebrew script today  $\text{מ}$ . Eventually this became the English M. Most of our letters are derived that way; for example, the Hebrew letter *bet*, from the first sound of the word *bayit*, house, was a boxlike symbol.

Justice Israel now begged the Court to take a jump from the macroscopic world to substances in science, often described in microscopic detail.

5. An ounce of water contains no less than  $10^{24}$  molecules of water, all in mad motion at room temperature. Each molecule is made up of two hydrogens and one oxygen atom, combined in such a way that they stick together. Only at high temperatures ( $> 500^\circ\text{C}$ ) would  $\text{H}_2\text{O}$  begin to fly apart into its component atoms.<sup>7</sup>

The symbols H for hydrogen and O for oxygen are just as arbitrary as the word water (or the letters in it). There is nothing arbitrary about the signified atoms or about the numeral two in  $\text{H}_2\text{O}$ , denoting the ratio of the atoms in the molecule. It was only around 1860 that chemists agreed that there were two hydrogens per oxygen and not one. The representation, anyway, is clearly symbolic.

6. The structural formula for water is indicated below:



It moves us toward the concrete mode, carrying an implication of a three-dimensional (here, actually two-dimensional) structure. Shapes of molecules are critical, determining all their properties. So it's significant not only that water is  $\text{H}_2\text{O}$ , but also that the oxygen is connected to two hydrogens (and not to one, as in H-H-O). And that it is "bent" (H-O-H angle  $104.5^\circ$ ) and not linear is critical. Were water linear (H-O-H angle  $180^\circ$ ), its properties would be very different and it might not be a liquid at ambient temperatures.

So is this structural formula concrete? No. It's a model, one representation, enlarged about  $10^8$  times, of a water molecule. Other representations, one called a space-filling model, the other an electron density map, are shown in figure 9. Each has a claim to the iconic, for each represents, quite nonuniquely, some aspect of the molecule.

7. Can we get a "better" picture of liquid water on a microscopic level; can we approach more nearly the concrete, Type I sign? To some degree.

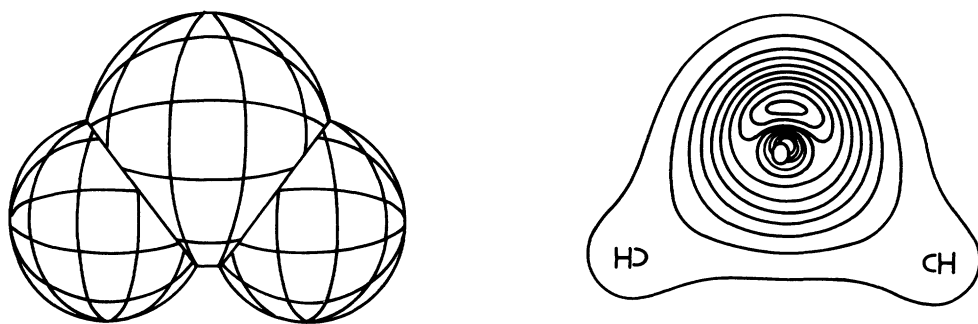
What one does (in a computer) is to pick a "statistically significant" sample of water molecules, say 100 of them. Then one sends them on their merry way, traveling in arbitrary directions, with a range of velocities that is set by the temperature. They collide with each other, with the walls of the containing vessel. This is a *simulation*, at the molecular level, of real water.<sup>8</sup> A typical picture of the instantaneous positions in this dance is shown in figure 10.

Is this "real," putting aside the unreality of the two-dimensional representation? Well, yes and no. It's pretty close to what happens in your seltzer, but it's still a model.

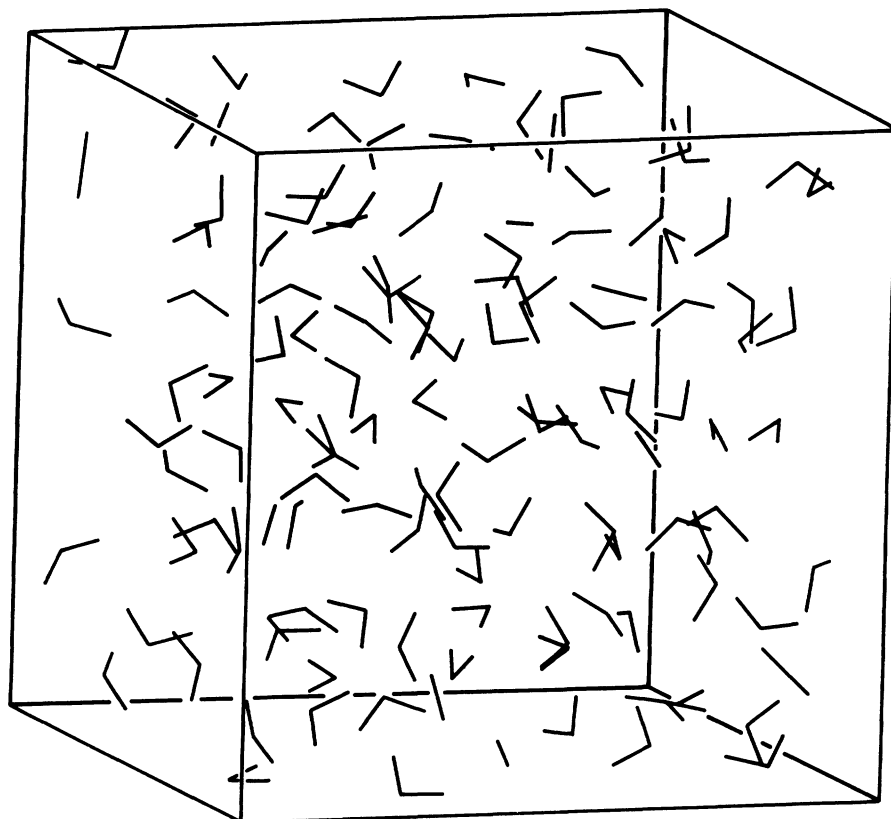
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7. For an excellent introduction to chemistry, see Peter W. Atkins, *Molecules* [New York: Scientific American Library, 1987]. See also Hoffmann and Laszlo.

8. For a leading reference to simulations of water structure see David L. Beveridge, et al., "Monte Carlo Computer Simulation Studies of the Equilibrium Properties and Structure of Liquid Water," in *Molecular Based Study of Fluids*, ed. J. M. Haile and G. A. Mansoori, *Advances in Chemistry Series No. 204* [Washington: American Chemical Society, 1983] 297–351, and William L. Jorgensen, "Monte Carlo Results for Hydrogen Bond Distributions in Liquid Water," *Chemical Physics Letters* 70 (1980): 326–29.



*Figure 9. Two modern views of the water molecule. We are grateful to Donald B. Boyd, Eli Lilly Co., for providing these drawings.*



*Figure 10. Dynamic simulation of the structure of liquid water. This representation was provided by David L. Beveridge, Wesleyan University, whom we thank.*

In concluding his analysis of the range of representations of water, Justice Israel remarked that it was impossible to put the representations numbered 1 through 7 on a single scale of directness/symbolism. Little “runs” of increasing directness might be noted, for example, 5 →6 →7 or 3 →2 →1, but a detailed analysis of 7 (the scientific dynamic model) or 1 (the photograph) quickly reveals the unreality of these representations. Perhaps one could mount the representations on a circle, but better still would be an analysis recognizing the ambiguities inherent in each and every representation. And the reality of each, as well.

Justice Israel then returned to the case of the Appellant, R. Zedek. While the justice was sympathetic to Zedek’s sense of ambiguity on facing the mismounted sign, the justice ruled that the lower court’s GUILTY verdict should stand.

He reasoned as follows: A scientist (and he had already mentioned Zedek’s advanced degrees) realizes that *any* sign is to some degree arbitrary, as the above analysis of water shows. Furthermore, a scientist is trained as a detective, to recognize anomalies, to reason on the basis of partial knowledge, to mistrust the obvious.

A glance at the faulty sign would certainly show a horizontal bar. But a scientist surely goes beyond the obvious. He notices the bar is not a white one on a red field (“do not enter”), but a white one encased in red on a blue field. At this point the scientist is bound by the dictates of his profession to form alternative hypotheses as to the origin of the mysterious sign. Here are some:

1. This is a new sign, whose meaning I don’t know.
2. This is a “No Entrance” sign, but someone messed up its painting.
3. This is an incorrectly mounted “No Standing” sign.

Theory, previous knowledge, new experiment, enter into the process of falsifying some of these hypotheses, leaving one standing as the most likely one.

As ingenuous as Zedek’s statement about his faith in the Beer Sheva police sounds, surely the facts indicate (and here the justice elicited that Zedek reads his daily newspapers) that the last hypothesis, given Occam’s Razor, is likely to be correct. It’s what Zedek, as a trained scientist should have suspected, and since he didn’t, he was GUILTY.

### 5. Justice Levi’s Opinion

The second opinion of the court was delivered by Justice Levi [see biography in inset box]. At the outset he disagreed vehemently with Justice Israel’s conclusion. The scientific deliberations recommended by his esteemed colleague would lead to seminars at all four-way stop signs.

Justice Aharon Levi was born in Tel Aviv in 1937. His parents left Israel when he was a child, to seek their livelihood raising chickens in New Jersey. At Princeton University the future justice studied art history, much to the consternation of his parents. On the family’s return to Israel he continued his studies, now in the Law, eventually launching himself into a lucrative private practice in Haifa in maritime law. In a brief moment in Israeli politics when complaints arose as to the otherworldly and anti-business slant of court rulings, he was appointed to the Supreme Court. Justice Levi’s private law practice had allowed him to build a fine collection of twentieth-century art.

To Justice Levi the legal question was crystal clear. Drivers have absolute responsibility to obey properly signed traffic codes. And the police have the responsibility for insuring the directives are unambiguously specified. If the signs are incorrectly posted, the driver has no liability. This was upheld in a Supreme Court Appeal [3 Feb. 1983, Isaac Asolin vs. State of Israel].

The justice wished, however, to justify his reasoning in



still another manner, drawing upon the Appellant's and Respondent's interest in sign structure. Ramban's analysis is clearly related to current theories of linguistics, literary criticism, and anthropology based on the work of Ferdinand de Saussure (1857–1913) and Charles S. Peirce (1839–1914) [see, for instance, Hawkes 123–35]. The police had assumed the court's knowledge of these literary matters, but the justice thought he knew better.

Saussure analyzed language as one of many systems of signs, and introduced the seminal distinction between the signified (say, the unnatural condition of no cars parked along a street) and the signifier (the physical object directing law-abiding Israeli citizens, as few as they might be, to not so park). Together the signifier and the signified make the sign.

Saussure called the science of signs semiology; his American counterpart, Peirce, termed it semiotics. Peirce proposed a classification of signs in terms of the relationship between signifier and signified. His system has the feel (and volume) of Talmudic discourse.

Peirce identified three functions that a sign might have. It might be an *icon*, by resembling its signified.<sup>9</sup> This is what the Appellant identified as Ramban's Type I, or direct mode—and what the Macintosh computer's icon commands have brought to a wider audience. The Type II sign Peirce called simply a *symbol*, an arbitrary convention of association. And he distinguished a third function, that of an *index*. The latter operates by some direct connection in space and time, showing a relationship (a pointing finger, a knock on the door).

Now neither Peirce nor Saussure cite Ramban, as a cursory library search by the justice's law clerk, a lapsed linguist, revealed. Neither do they cite each other. Though we stand on the shoulders of giants, Justice Levi said wistfully, they had better be of the same subculture [see Merton].

A semiotic analysis of many aspects of our culture is instructive, and traffic signs in particular lend themselves to such discussion. A valuable book by Martin Kampen, *Geschichte der Strassenverkehrszeichen (History of Highway Traffic Signs)*, is devoted to this subject.<sup>10</sup> It is useful, the justice continued, to analyze the signs in the Hockney photomontage, presented by the Appellant, classifying them à la Ramban or Peirce, to see what factors might have motivated Zedek to his illegal action in an ambiguous situation.

The "Pearblossom Hwy," "Stop Ahead," "California 138", and "Stop" signs in the Hockney opus [fig. 3] belong to the symbolic Type II mode, because there is nothing in their content or shape that corresponds to the signified object. But what about the right and left arrows under the "California 138" road sign, and the arrow atop the "Stop Ahead" sign (note the symbolic redundancy of this sign—a symbol *and* a text; perhaps Californians suffer from iconic surfeit)? Peirce would classify these arrows as indices. Ramban would examine each sign in terms of his two categories. It is likely that he would not dichotomize. But to a man living in a world where arrows were the instrumentality of war, it would be difficult to attach a mere symbolic value to them.

It is instructive to explore the ambiguity of the arrow sign in the work of an artist arrowmaker par excellence, Paul Klee. Klee's work is shot through with arrows; the symbol appears on the cover of his *Pedagogical Sketchbooks* and in hundreds of his creations. Why the arrow? Because Klee constructed his universe in terms of tensions or balances. One of these is that between standing still and moving, between static and

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9. The term "icon" was used by the medieval Franco-Jewish Bible commentator Rashi (1040–1105) in explaining Gen. 37:2 by saying "the iconic appearance of Joseph was similar to Jacob." The Hebrew word Rashi uses is, in fact, ikonin, from the Greek, as is the English word.

10. Martin Krampen, *Geschichte der Strassenverkehrszeichen [Tübingen: Stauffenburg, 1988]*. This book has many valuable references to other semiotic discussions of traffic signs. Reprinted as "Icons of the Road," *Semiotica* 43.1–2 (1983).

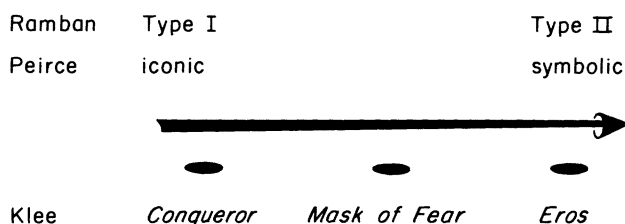
dynamic. The arrow is icon as well as symbol of this tension, whether it is physical or within the psyche. Klee also viewed the arrow as an essential symbol of the human condition: “The father of the arrow is the thought: How do I expand my reach . . . ?”<sup>11</sup>

In Klee’s *Conqueror* (1930) [fig. 11], we see iconic use of the arrow. It might be thought the arrow is even redundant, for the imbalance of the figure and the standard he bears give this watercolor its motion. But that is not so; if we delete the arrow, the composition’s sense becomes one of stumbling rather than conquest. The arrow focuses the other forms in the composition.

A more symbolic use of the arrow is to be found in the oil on burlap painting of 1932, *Mask of Fear*. This was created at the beginning of the Nazi period; Klee’s works figured prominently in the famous exhibition and sale of “degenerate” art. The upper-left arrow clearly symbolizes constrained thought.

Finally, the arrow can become an abstract symbol, as in *Eros* (1923). The subtly colored stripes define gently the ground of desire where strong forces will join, inevitably, in the realm of ideas or love.

These three works by Klee, a small sample of the arrow-containing subclass of this prolific artist’s oeuvre, illustrate the continuous gradation from iconic to symbolic representation, as shown, symbolically, below.



Or should the arrow run the other way?

In concluding his discussion of arrows, Justice Levi pointed out that the meaning of an arrow in art or in everyday life will depend upon the context. Zedek, faced with the disputed sign, made a reasonable guess about its meaning.

Justice Levi ruled in favor of the Appellant Zedek: NOT GUILTY.

[At the conclusion of the reading of Justice Levi’s opinion, the Appellant interjected that as far as he was concerned, all he saw in Israel were right-turn arrows. The justices ordered this remark stricken from the record.]

## 6. Justice Cohen’s Opinion

Justice Cohen [see biography in inset box] expressed some discomfort at the artistic and scientific reasoning of the other justices. Though in the end he had to concur with one of his respected colleagues, he wished to base his decision instead on uniquely Jewish tradition and law (the *halakha*).

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11. Paul Klee, *Pedagogical Sketchbook* [London: Faber and Faber, 1968] 54. See also Carolyn Langer, ed., Paul Klee [New York: Museum of Modern Art, 1987] (*Eros*, *Mask of Fear*) and Jürgen Glaesemer, Paul Klee, *Die Farbigen Werke im Kunstmuseum Bern* [Bern: Kornfeld, 1976] (*Conqueror*).

Instructive discussions of Klee’s work in the context of this article may be found in Mark Rosenthal, “Deciphering Klee,” *Portfolio* 1.5 (1979–80): 62–70; Katalin de Walterskirchen, Paul Klee [New York: Rizzoli, 1975]; Richard Verdi, *Klee and Nature* [New York: Rizzoli, 1985]; Félix Thürlemann, Paul Klee: *Analyse Sémiotique de Trois Peintures* [Lausanne: L’Age d’Homme, 1982].

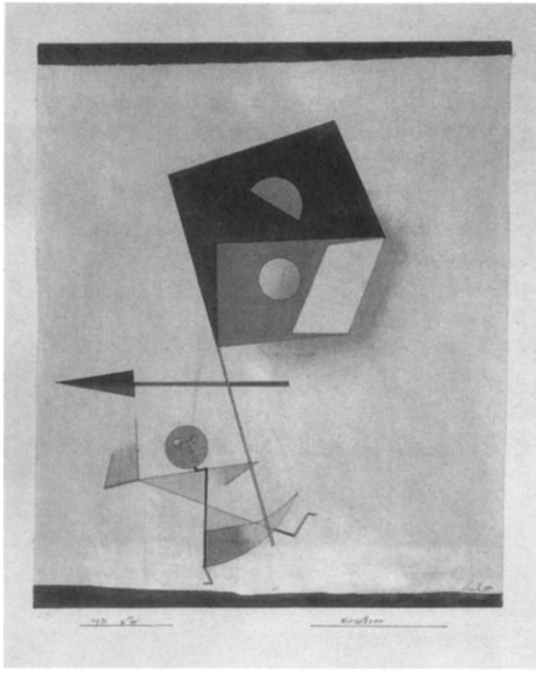


Figure 11. Paul Klee, Eroberer, 1930 (W10.129) (Conqueror). Watercolor on canvas and cardboard, 40.5 x 34 cm, Paul Klee Foundation, Museum of Fine Arts Bern, ©1991, Copyright by Cosmopress, Geneva.

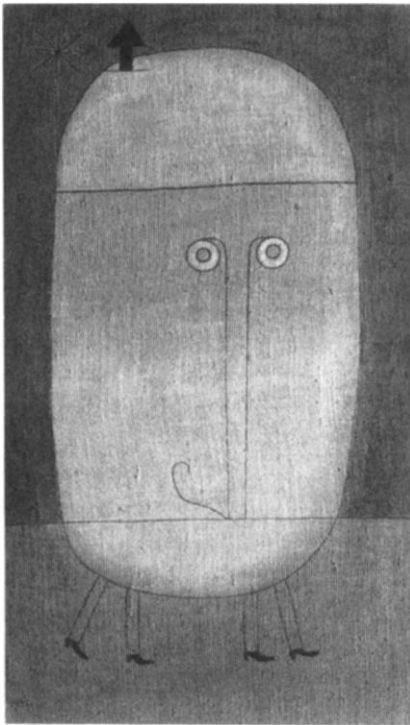


Figure 12. Paul Klee, Mask of Fear (Maske Furcht), 1932, Oil on burlap, 100.4 x 57.1 cm, Collection, The Museum of Modern Art, New York. Nelson A. Rockefeller Fund.

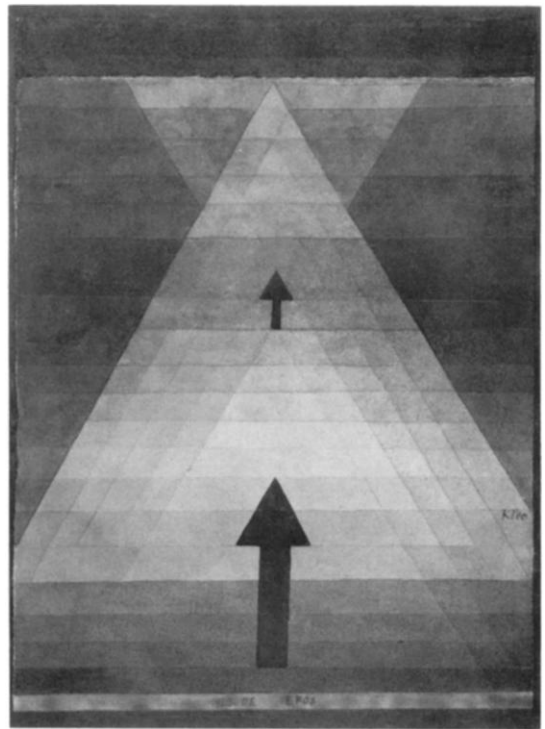


Figure 13. Paul Klee, Eros, 1923, Collection Rosengart, Lucerne.

He began by congratulating the Appellant for adducing the arguments of Ramban. The justice also had some acid remarks on the lack of corresponding traditional learning among the Police, but these were stricken from the record. He summarized the problem before the Court as follows: If the ambiguous sign were to be interpreted in a Ramban Type I, iconic mode, the misposted sign would be invalid. If, however, it were to be read in the Type II, symbolic way, it would be legally valid.

Justice Cohen was heir to both modes. From his father he had received the iconic tradition of sign interpretation, which found its most ardent expositor in the writings of the nineteenth-century German Rabbi Samson Raphael Hirsch. Hirsch emphasizes that a symbol is a piece of reality that conveys to the mental eye a quality difficult to communicate through the mere process of reasoning.

At this point Justice Cohen opened *Basic Guidelines for a Jewish Symbolism*,<sup>12</sup> a family heirloom printed in Frankfurt in 1858 and dedicated in Hirsch's own hand to the justice's paternal grandfather.

Justice S. Cohen is the scion of two distinguished families. His mother is from the Kapach family of Yemenite Jews renowned for their translations and commentaries on Maimonides. His father is a descendant of Rabbi Samson Raphael Hirsch, responsible for the nineteenth-century intellectual reinvigoration of Frankfurt Jewry. His mother called him Saadya, and his father called him Siegfried; to keep the peace he adopted the initial S. He describes his parents' "mixed marriage" as "an intercultural marriage that blends many traditions." This was a mixed blessing: he was expelled from the Hirsch Horev Yeshiva because he mixed up the blessings for matzah balls and gefilte fish, neither of which he recognized, having been raised on his mother's Yemenite *kubaneh*. For a hobby he does ritual calligraphy of biblical verses.

Though Hirsch's work is encyclopedic, there is no direct reference in it to parking signs. But in Hirsch's Bible commentary there is a lengthy discussion of the rainbow, the same sign that occasioned Ramban's semiotic distinction. Hirsch interprets every aspect of the rainbow (shape, substance, color) as a carrier of a message. As the product of the interaction of light and water, for instance, it signifies that

*amidst clouds capable of dispensing either life or death, we behold the presence of light, a reminder that even in the midst of wrath, God's life-preserving mercy endures. . . . The aspect that*

*most approximates the rainbow's symbolic significance is the sign of the spectrum . . . signifying nuances and varieties in the human personality. Now is not the rainbow simply one unified, complete ray of light broken up into seven colors? These colors range from the red ray, which is closest to the light, to the violet, which, farthest from the light (from Heaven), merges into darkness. Yet . . . together, they form one complete white ray. Might this not be interpreted as symbolizing the whole infinite variety of living things from Adam [in Hebrew, the red one] closest to God, to the most obscure form of life [represented by violet], a worm? . . . They are all fragments of one life, all refracted emanations of one Divine Spirit. [Hirsch, Commentary 48–49]*

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12. Samson Raphael Hirsch, *The Collected Writings*, vol. 3, "Basic Guidelines for a Jewish Symbolism" [New York: Feldheim, 1984], translated from the original 1856 essay; and Samson Raphael Hirsch, *Horeb*, vol. 1 [London: Soncino, 1962] cvii–cxx.

Justice Cohen said that in the service of fairness he must enter on the record that some critics see Hirsch as reflecting nineteenth-century German romanticism, interpreting Judaism apologetically as an ideal aesthetic system. Reading Hirsch you might think the Pentateuch was written by Schiller, about whom Hirsch wrote one of his well-known essays.

Nodding to his colleague, he noted there is little arbitrariness in nature, as Justice Israel had shown in the structural representation of a water molecule, where there was even a purpose to the 104.5° angle between the oxygen and hydrogen atoms. So it was unlikely that there would be arbitrariness in the details of biblical symbols.

Analogously, the noticeable rotation of the “No Standing” sign by 45° was certainly enough deviation to invalidate it, given the Hirschean iconic viewpoint.

On the other hand, from his maternal forebears Justice Cohen had inherited the extremely abstract Type II mode of analysis, epitomized in the works of Maimonides, the ultimate rationalist. The justice then read a segment from a signed copy of the translation by J. Kapach, his mother’s brother, of the *Guide to the Perplexed* [3:26] wherein Maimonides derides those who attempt to find symbolic meaning in every scriptural detail.

*Those who trouble to find a cause for any of these detailed rules, are in my eyes meshuggah [sic] and devoid of sense; . . . Divine Wisdom demanded it—or, . . . say that circumstances made it necessary—that there should be parts [of His work] which have no certain object. You ask why must a lamb be sacrificed and not a ram? But the same question would be asked, why a ram had been commanded instead of a lamb, so long as one particular kind is required. The same is to be said as to the question why were seven lambs sacrificed and not eight; the same question might have been asked if there were eight, ten, or twenty lambs. . . . [311]*

Hirsch, a few hundred years later, goes on at great length about why a lamb, why seven, and so forth. The complexity and richness of exegesis lends itself to rococo extravagances. Hirsch’s book was a godsend to Sabbath sermonizers, while Maimonides’s exasperation was positioned between the holy—the argument of the Book of Job—and the human-exaggerated symbolic interpretation.<sup>13</sup>

Justice Cohen, while respectful of tradition, was not opposed to the wisdom of modern science (he brought to Justice Israel’s attention the commendable optics of Rabbi Hirsch). Obviously what one had before the Court was a case of pattern recognition.

All signs are to some degree arbitrary; even the most iconic can be deconstructed so that their apparent iconicity is reduced to a shambles. Yet people and societies function in spite of the deconstructing mind. The problem of recognizing a rotated sign is similar to identifying rotated or misshapen letters and numbers. Advances in pattern recognition theory have enabled computers to read, for example, zip codes that are imprecisely written [see Schwab and Nusbaum].

Justice Cohen cited an example from his own, pre-computer-age heritage. There was a shortage of Hebrew texts in Yemen. So pupils would encircle a teacher who held the sole book available for that group, and they would have to be able to read it from any angle, as we see from figure 14. Justice Cohen often found himself reading documents upside down that another justice, seated opposite him, was holding.

Still, the justice was ambivalent about the Beer Sheva traffic sign and was of two minds about the guilt/innocence of the Appellant. Therefore, he proposed an empirical

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13. For a discussion of allegorical interpretations see Nehama Leibowitz, *Studies in Shemot* [Jerusalem: World Zionist Organization, 1986] 497–507.

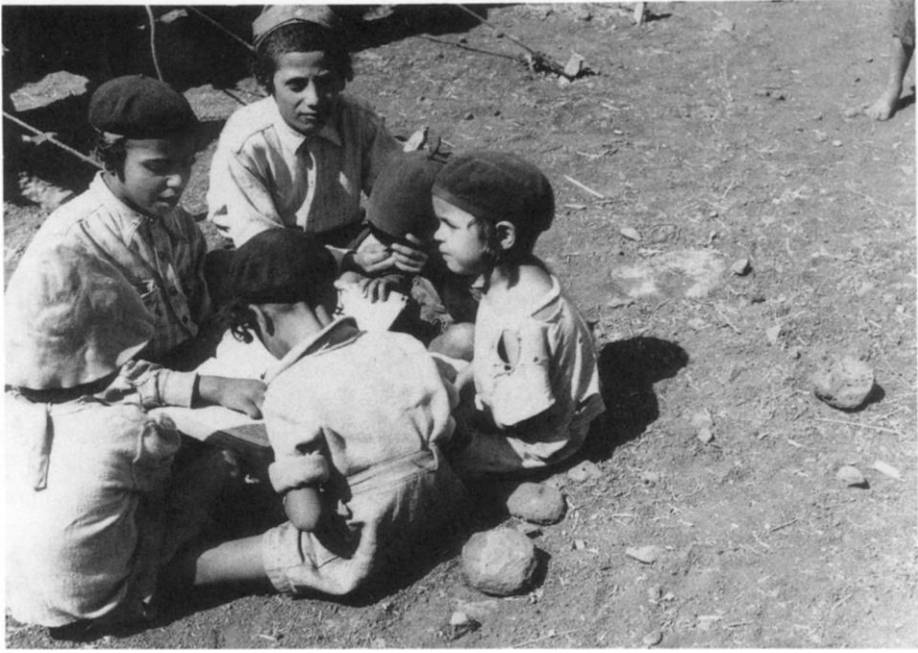


Figure 14. Yemenite children reading the same text from different angles. (Courtesy of Central Zionist Archives, Jerusalem.)

pattern recognition criterion, modeled on that for Jewish ritual inscriptions. The test is designed to ascertain how much a handwritten letter deviates from the ideal standard form for that letter. Serious deviation would render the entire document ritually invalid. The differences between Hebrew letters are often subtle, equivalent to the difference, say, between the English capital letters O and D. Precision is imperative. The test is described in the codes of law. The *Shulhan Aruch* [Tefillin 32:16] says, “If one finds a letter that is unclear, and a child who is neither overly bright nor overly dull can read it, it is kosher (valid). Otherwise, it is invalid.”<sup>14</sup> Justice Cohen said that just the previous week a friend brought a document to him to ascertain whether a given letter was ritually valid. In such a situation he calls in his six-year-old son and asks him to read the letter, when the surrounding letters are covered over. If this young, barely literate “unbiased bystander” can read the ambiguous letter, it is deemed valid.<sup>15</sup>

At that point, the justice asked the clerk to open the door, and in came the shy lad. Justice Cohen showed him a chart with the ambiguous traffic sign on top and two other signs on the bottom (“No Entrance” and a correctly aligned “No Standing” sign). He asked the boy which of the two bottom signs most closely resembled the disputed sign. Smiling at what seemed to be a game, the child pointed without hesitation to the “No Standing” sign.

Frowning, Zedek realized that it was almost unnecessary for Justice Cohen to announce his decision: the sign was valid, the Appellant GUILTY.

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14. See also Maimonides, *Sefer Torah*, chap. 8.

15. The Justice noted the relationship of this ancient procedure to the current US test for obscenity, established in 1973 by the US Supreme Court in *Miller vs. California*: one of the three criteria a work must meet if it is to be judged obscene is that “the average person, applying contemporary community standards” would find that the work taken as a whole appeals to prurient interest.

## 7. Verdict

In conclusion the Supreme Court held, by a two to one vote, that the District Court's judgment was upheld, and Rodef Zedek was GUILTY. However, this being Israel, and there being precedent, the court ruled that the fine for the offense of R. Zedek, which was originally 20 Israeli shekels (increased to 100 in the district court proceeding) be reduced to 10 shekels or one day in prison. Furthermore, the Police of the State of Israel were ordered to pay the costs of the Appellant.<sup>16</sup>

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