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# Shabbat "Beyond Time" and the Physics of Time: A Mystical Deep Dive with a Careful Bridge to Modern Physics

Julian Ungar-Sargon, MD, PhD

*Correspondence: Julian Ungar-Sargon

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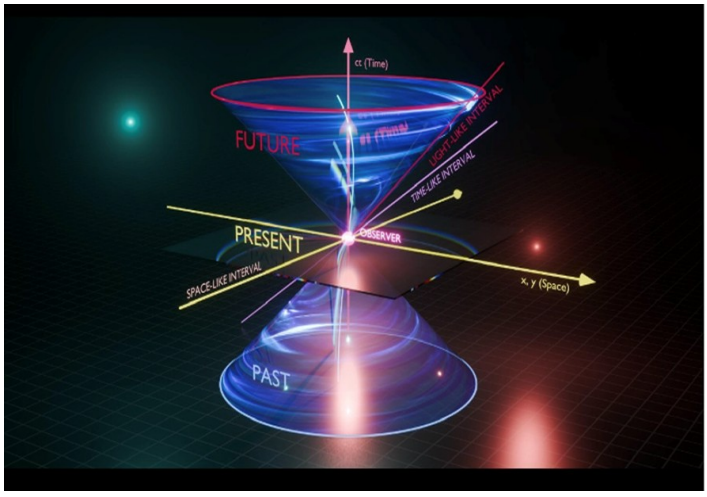
## *Abstract*

*This article examines the concept of Shabbat as "beyond time" (le-ma'alah min ha-zeman) through a sustained engagement with Zoharic Kabbalah and Hasidic thought, followed by a carefully delimited bridge to Richard Feynman's physics of time. Beginning with the Zohar's architecture of "two Shabbatot" and its association of the upper Shabbat with the sefirah of Binah, the analysis traces how Hasidic masters—including the Maggid of Mezritch, R. Menahem Nahum of Chernobyl (Meor Einayim), R. Shneur Zalman of Liadi, R. Levi Yitzchak of Berditchev, the Sefat Emet, and the Mei HaShiloach—transformed Zoharic metaphysics into a lived phenomenology of temporal transcendence. Drawing on the scholarship of Arthur Green, Elliot Wolfson, Michael Fishbane, Eitan Fishbane, Moshe Idel, and Rivka Schatz-Uffenheimer, the article reconstructs a coherent Hasidic theology of Shabbat-time. It then offers Feynman's treatment of relativity and the path-integral formulation as analogical—not identical—resources for understanding why "one linear story" is not the deepest description of reality, either in physics or in the mystical apprehension of sacred time.*

**Keywords:** Shabbat, Kabbalah, Hasidism, Zohar, time, Meor Einayim, Sefat Emet, Mei HaShiloach, path integrals, Feynman, Jewish mysticism, Binah, devekut.




## Introduction: The Problem of Time in Jewish Mystical Thought

The claim that Shabbat stands "beyond time" is among the most persistent and least analyzed assertions in Jewish mystical literature. It appears across the Zoharic corpus, in the liturgical poetry that frames Kabbalat Shabbat, and in virtually every major Hasidic commentary on the Shabbat. Yet the phrase is routinely left unexamined, treated as devotional hyperbole rather than as a precise theological claim requiring careful elucidation. This article takes the claim seriously on its own terms, drawing on both Kabbalistic and Hasidic sources and on the secondary scholarship that has made these traditions accessible to academic inquiry.

The problem of time has been central to Jewish mystical thought since the earliest Kabbalistic writings. As Gershom Scholem demonstrated in his foundational studies, the Kabbalists developed a sophisticated theosophical framework in which temporal experience is mapped onto the internal dynamics of the divine (1). Isaiah Tishby's anthological work on the Zohar further clarified how the Zoharic authors understood time as a function of the interplay between the sefirot—the divine attributes or emanations through which the Infinite (Ein Sof) discloses itself in creation (2). Daniel Matt's translation of the Zohar has made these passages available in English with scholarly annotations that illuminate the temporal theology embedded in the Zoharic narrative (3).

More recently, the question of time in Jewish mysticism has been taken up with renewed vigor by scholars working at the intersection of Kabbalah, phenomenology, and theology. Arthur Green's work on neo-Hasidic theology has consistently emphasized the ways in which mystical consciousness reconfigures the experience of temporality, moving the practitioner from a fragmented, anxious relationship to time toward what Green calls "a deeper now" (4). Elliot Wolfson, in his densely philosophical studies of Kabbalistic thought, has argued that time in the Kabbalistic imagination is not merely sequential but possesses a "luminal" quality—a paradoxical structure in which past, present, and future interpenetrate (5). Michael Fishbane's theology of "sacred attunement" frames the encounter with sacred time as a mode of hermeneutical listening, in which the self becomes porous to a depth-dimension of reality ordinarily concealed by the surface logic of chronological succession (6). And Eitan Fishbane's studies of medieval Kabbalistic interiority have shown how the inner world of the mystic is structured by a temporal experience qualitatively different from that of ordinary consciousness (7).

Abraham Joshua Heschel set the terms for much of this discussion in his classic essay The Sabbath, which argued that Judaism is fundamentally oriented toward the sanctification of time rather than space. Heschel famously characterized the Sabbath as "a palace in time"—a domain of holiness constructed not from stone but from attention, rest, and the deliberate refusal to manipulate the material world (13). Heschel's distinction between the civilization of space (technology, acquisition, dominion over nature) and the architecture of time (meaning, presence, sanctity) remains the indispensable starting point for any serious engagement with Shabbat's temporal theology (35).

This article proceeds in six movements. First, it reconstructs the Zoharic foundations of Shabbat-as-beyond-time, attending to the symbolism of "two Shabbatot," the Raza d'Shabbat (the "secret of

Shabbat"), and the association of the upper Shabbat with Binah. Second, it traces the Hasidic transformation of Zoharic metaphysics into a phenomenology of temporal transcendence, moving through the Maggid of Mezritch, the Meor Einayim, Chabad Hasidism, the Kedushat Levi, the Sefat Emet, and the Mei HaShiloach. Third, it offers a synthetic account of Hasidic Shabbat-consciousness. Fourth, it constructs a carefully delimited bridge to Feynman's physics of time. Fifth, it draws the practical (avodah) implications. A conclusion follows.


## Zoharic Foundations: The Architecture of Shabbat-Time

### The Two Shabbatot and the Binah Framework

The Zohar does not speak of a single Shabbat but of a dyadic structure: an upper Shabbat (Shabbat de-le'eila) and a lower Shabbat (Shabbat de-letata). This distinction is not calendrical—there are not two days—but ontological: two registers of reality that align and interpenetrate when Shabbat arrives. As Tishby demonstrated, the upper Shabbat is consistently associated in the Zohar with the sefirah of Binah, the "supernal mother" (Imma Ila'ah), while the lower Shabbat corresponds to Malkhut or the Shekhinah—the divine presence as it interfaces with the created world (2). The plural form Shabbetotai ("my Sabbaths") in the biblical text (Exodus 31:13) is read by the Zoharic commentators as an allusion to this dual structure (3).

The significance of locating the upper Shabbat in Binah cannot be overstated. Binah in the Zoharic system is the sefirah of integrative understanding—the "place" where the raw, undifferentiated potency of Hokhmah (primordial wisdom) is received, gestated, and differentiated into intelligible form. It is, in Wolfson's language, the womb of manifestation, the site where the One begins to become the many without ceasing to be One (11). When the Zohar associates Shabbat with Binah, it is making a precise claim: Shabbat is the temporal moment when the world is re-read from the vantage point of integrative intelligence, where fragmentation is not ultimate, where the many are gathered back into a higher legibility.

Wolfson's sustained engagement with Zoharic temporality has demonstrated that time in the Zohar is never merely chronological but always also symbolic—a medium through which theosophical dynamics are expressed and enacted. In his analysis of the "luminal" quality of Zoharic time, Wolfson argues that the Zohar operates with a temporal logic in which opposites—past and future, concealment and disclosure, judgment and mercy—are held together in paradoxical simultaneity (5). This is precisely the temporal mode that Binah represents: not the abolition of sequence but its transfiguration into a higher unity. Yehuda Liebes has further shown how the Zoharic narrative itself enacts this temporal paradox, with its digressive, nonlinear storytelling mirroring the non-sequential time it describes (32).

Eitan Fishbane's work on the poetics of the Zohar offers an additional dimension. In his analysis of Zoharic narrative art, Fishbane demonstrates that the Zohar's literary form is itself a vehicle for the temporal consciousness it articulates. The Zohar does not merely describe a transfigured experience

of time; it performs it through narrative strategies of interruption, recursion, and layered revelation (30). The reader who enters the Zoharic text is drawn into a mode of reading—and thereby a mode of temporality—that mirrors the Shabbat-consciousness the text proclaims.

## Raza d'Shabbat: The Secret of Shabbat as Cosmic Unification

The Zoharic passage known as Raza d'Shabbat ("The Secret of Shabbat"), recited or alluded to in many Kabbalat Shabbat traditions, presents Shabbat as a moment of cosmic unification. In this passage, the Zohar declares that when Shabbat enters, the Shekhinah is crowned with supernal crowns, all judgments are gathered back from her, and she shines with a luminosity drawn from the upper worlds (3). Matt's translation captures the passage's liturgical intensity: Shabbat is not merely a cessation of labor but a metaphysical event—a realignment of the entire sefirotic structure toward harmony, blessing, and union (20).

The timing of Shabbat's entry is itself significant. The Zohar locates the transition at twilight (bein ha-shemashot), the liminal boundary between day and night, between the profane week and the sacred seventh. In the Zoharic imagination, this is not an arbitrary convention but a structural necessity: the boundary moment is where the world's normal ordering "thins" and the transition between ontological registers becomes possible. As Scholem noted, Kabbalistic thought consistently associates liminal times and spaces with heightened spiritual potency (1). The twilight of Shabbat eve is the seam in time—the point where the weekly temporal machine is re-rooted in its higher source.

Michael Fishbane's hermeneutical theology illuminates the significance of this claim. In Fishbane's reading, sacred time is not an objective property of certain calendar moments but an attunement—a mode of receptive listening in which the practitioner opens to the depth-dimension of reality that ordinary, instrumental consciousness keeps at bay (6). The Raza d'Shabbat describes, in mythic-symbolic language, what it is like for the cosmos itself to enter this attunement: worlds unite, judgment is sweetened, and the divine presence shines. The human observance of Shabbat participates in and enacts this cosmic event.

Haviva Pedaya's research on cyclical and sacred time in Kabbalistic thought further contextualizes the Zoharic claim. Pedaya has argued that the Kabbalists developed a sophisticated model of temporal recursion in which sacred times do not merely commemorate originary events but re-enact them ontologically—each Shabbat is not a memorial of creation's seventh day but a genuine recurrence of the originary rest (31). In this framework, "beyond time" does not mean anti-temporal but rather a quality of time in which the originary and the present overlap.

## Hasidic Transformations: From Metaphysics to Phenomenology

If the Zohar provides the metaphysical architecture, Hasidism provides the phenomenology—the account of what it is like, within a human soul, to inhabit Shabbat's altered temporality. The Hasidic masters did not reject or replace the Zoharic framework; they translated it from the idiom of theosophical symbolism into the register of inner experience. As Rivka Schatz-Uffenheimer demonstrated in her foundational study, early Hasidism effected a decisive turn toward interiority, reading the Zohar's cosmic dramas as descriptions of states of con-

sciousness accessible to the devoted practitioner (15). Moshe Idel's complementary analysis has shown how this turn did not abandon the theosophical dimension but absorbed it into an experiential framework centered on devekut (cleaving to God) and the transformation of ordinary awareness (9).

## The Maggid of Mezritch: Devekut and the Dissolution of Temporal Anxiety

R. Dov Ber of Mezritch, the "Great Maggid" and the primary architect of Hasidic thought after the Baal Shem Tov, laid the foundations for the Hasidic understanding of Shabbat-time. In his collected teachings (Maggid Devarav le-Ya'akov), the Maggid developed a theology of devekut (adhesion to the divine) in which the practitioner's ordinary consciousness—fragmented, anxious, subject to temporal pressure—is progressively dissolved into awareness of the divine ground (42). Schatz-Uffenheimer has argued that the Maggid's mysticism contains a "quietistic" dimension: the goal is not the active accumulation of spiritual achievements but the passive reception of divine presence through the nullification of the ego and its temporal concerns (15).

For the Maggid, Shabbat is the paradigmatic moment of this nullification. On Shabbat, the practitioner is relieved of the commandment to "work"—not merely in the physical sense but in the spiritual sense of active striving. The Maggid reads the six days of the week as corresponding to the six active sefirot (Hesed through Yesod), which are the channels of divine creative energy flowing into the world. Shabbat, associated with Malkhut receiving from Binah, is the moment when this flow is gathered, integrated, and experienced as wholeness rather than succession (42). Ron Margolin has shown how this Maggidic framework became the template for subsequent Hasidic phenomenologies of sacred time, in which the inner experience of the practitioner is understood as a microcosm of the sefirotic dynamic (16).

## Meor Einayim: Divine Immanence and the Luminous Present

R. Menahem Nahum of Chernobyl, author of the Meor Einayim ("Light of the Eyes"), offers one of the most developed Hasidic theologies of divine immanence and its relationship to temporal experience. Green's landmark translation and study of this text revealed the Meor Einayim as a work of remarkable spiritual depth, one that consistently argues for the presence of the divine light within every element of creation—including, crucially, within every moment of time (8).

The Meor Einayim's treatment of Shabbat is rooted in its broader theology of divine contraction and revelation. Following the Lurianic framework articulated by Isaac Luria and reconstructed by Lawrence Fine (17), R. Menahem Nahum understands creation as a process in which the infinite divine light contracted (tzimtzum) to make room for the finite world. The created world, however, is not thereby abandoned by the divine; rather, sparks (nitzotzot) of divine light are embedded within every aspect of creation, awaiting elevation and reunification. Green has argued that R. Menahem Nahum's distinctive contribution is his insistence that this process of elevation is not eschatological but present-tense—available in every moment to the practitioner who knows how to perceive the divine light within the mundane (8, 14).

On Shabbat, according to the Meor Einayim, this perception becomes dramatically more accessible. The Meor Einayim teaches that during the six days

of the week, the divine vitality (hiyyut) that sustains creation is, as it were, clothed in the garments of nature—concealed within the ordinary processes of causality, labor, and temporal succession. On Shabbat, these garments become transparent: the divine vitality is revealed in a mode of disclosure that transforms the practitioner's relationship to time itself (39). Time ceases to be experienced primarily as a pressure of succession—one thing after another, each moment displaced by the next—and is instead experienced as what we might call a "luminous present," in which the divine ground of each moment is perceptible.

Green's commentary on this teaching emphasizes its practical and existential dimensions. The Meor Einayim is not offering a theoretical cosmology but a spiritual practice: the practitioner is invited to enter Shabbat as one enters a field of intensified perception, where the ordinary world's concealment of its divine source becomes temporarily (and mercifully) less opaque (8). This is the sense in which the Meor Einayim's Shabbat is "beyond time": not that clocks stop, but that the temporal medium itself is experienced as luminous, saturated with a presence that the week's busyness routinely obscures. As Idel has argued, this Hasidic emphasis on immanent perception represents a distinctive transformation of earlier Kabbalistic models that located the divine primarily in transcendent realms (9, 10).

## Kedushat Levi: Shabbat as Cosmic Testimony

R. Levi Yitzchak of Berditchev, the beloved "defender of Israel," develops a complementary theology in his Kedushat Levi. Here, Shabbat functions as edut (testimony)—a weekly declaration that the world's apparent self-sufficiency is an illusion. The Kedushat Levi reads the commandment to "remember the Sabbath day" as an injunction to bear witness to the fact that creation is not autonomous but sustained at every instant by divine will (36).

For R. Levi Yitzchak, the weekday illusion is precisely the illusion of temporal self-sufficiency: that time flows on its own, that causality is self-grounding, that the world's processes require no sustaining ground. Shabbat shatters this illusion by re-disclosing the world's dependence on its divine source. In this sense, Shabbat is "beyond time" because it refuses to let time function as an autonomous container of meaning. The Kedushat Levi's testimony-theology connects directly to Heschel's insight that the Sabbath is a protest against the tyranny of things—extended, in R. Levi Yitzchak's version, to a protest against the tyranny of temporal succession itself (13).

Nehemia Polen's studies of Hasidic spiritual leadership provide context for understanding how the tzaddik's testimony on Shabbat functions as a communal event. The tzaddik who enters Shabbat-consciousness does not do so alone; through the mechanism of the Hasidic gathering—the tish, the communal meal, the shared singing—the altered temporality becomes collectively available (18). The testimony is not private mystical experience but a shared re-orientation of an entire community's relationship to time.

## Tanya: The Soul's Temporal Architecture

R. Shneur Zalman of Liadi, the founder of Chabad Hasidism, brought philosophical rigor to the Hasidic phenomenology of time. In the Tanya and in his homiletical works Torah Or and Likkutei Torah, R. Shneur Zalman develops a detailed account of the soul's "two inclinations" (nefesh ha-elokit and nefesh ha-behamit) and their differing relationships

to temporal experience (37, 38).

Rachel Elior's study of Chabad theosophy has demonstrated how R. Shneur Zalman's system maps the soul's inner dynamics onto the sefirotic structure with unprecedented precision (19). The "animal soul" (nefesh ha-behamit) is, in R. Shneur Zalman's framework, the faculty that experiences time as a succession of desires, fears, and reactions—it is the soul's temporal captive. The "divine soul" (nefesh ha-elokit), by contrast, possesses an innate orientation toward the timeless—toward the divine unity that transcends the fragmentary quality of sequential experience. Shabbat, in this Chabad reading, is the weekly occasion on which the divine soul's native temporality is allowed to emerge more fully, reshaping the practitioner's experience from within.

In Likkutei Torah, R. Shneur Zalman explicitly connects Shabbat to the concept of menuha (rest) understood not as cessation but as arrival—the soul's coming to rest in its divine source, which is also its native home (37). Wolfson has argued that this Chabad formulation represents a sophisticated reworking of the Zoharic Binah-framework, in which the "return" to Binah is experienced subjectively as an expansion of awareness—a widening of the present moment to include its own ground (25). The Chabad contribution to the theology of Shabbat -time is thus a radicalization of the Zoharic insight: Binah is not merely a cosmic location but a mode of consciousness that the human soul can enter.

## Sefat Emet: The Soul Above Nature and Time

R. Yehudah Aryeh Leib Alter of Ger, known by the title of his magnum opus the Sefat Emet, offers what is arguably the most explicit Hasidic articulation of Shabbat as "above nature and time" (lema'alah min ha-teva ve-ha-zeman). Green's translation and commentary on the Sefat Emet have made this teaching widely accessible, revealing a thinker of extraordinary subtlety who combines Zoharic depth with a distinctive emphasis on inner truthfulness (44).

In a teaching on Parashat Hayyei Sarah, the Sefat Emet contrasts ordinary embodied life—subject to the constraints of nature and temporal succession—with the "upper worlds" where the soul's root is not bound in the same way (40). Sacred times, particularly Shabbat, function as access points to this "upper" register. But the Sefat Emet is careful: he is not denying the reality of physical time. He is saying that Shabbat reorients the person—less reactive, less enslaved to the week's churn of desire and anxiety—so that the soul's deeper register becomes available. The temporal shift is real but experiential, not cosmological in the sense that clocks are affected.

The Sefat Emet also develops a powerful theology of Kiddush (the sanctification over wine that inaugurates Shabbat) as testimony to the world's dependence on divine vitality. In Green's reading, the Sefat Emet's Kiddush-theology is an extension of his broader teaching that all of creation contains an "inner point" (nekudah penimit)—a core of divine life that the week's busyness conceals but Shabbat discloses (44). When the Sefat Emet says Shabbat is "above time," he means that Shabbat grants access to this inner point, which is not temporal in the ordinary sense but is the timeless ground from which temporal succession itself emerges.

Wolfson's analysis of temporal paradox in Kabbalistic thought provides a framework for understanding the Sefat Emet's claim. As Wolfson has argued,

the mystical perception of the timeless within time is not a contradiction but the fulfillment of the temporal—the moment when time becomes transparent to its own depth (43). The Sefat Emet's "above time" is thus not a negation of temporality but its consummation: Shabbat is the time when time arrives at its own meaning.

## Mei HaShiloach: Time, Place, Person—and the Choicest of Times

R. Mordechai Yosef Leiner of Izhbitz, whose teachings are collected in the Mei HaShiloach, offers a strikingly different but complementary approach. The Mei HaShiloach frames creation through a triad: zeman (time), makom (place), and nefesh (person/soul). God structured creation through these three dimensions, and Shabbat is designated as "the choicest of times" (muvhar she-ba-zemanim)—not merely the best day of the week but the temporal dimension at its most transparent to its divine source (41).

Shaul Magid's comprehensive study of Izhbitz-Radzin Hasidism has illuminated the radical implications of the Mei HaShiloach's theology (27). The Izhbitzer's deeper move, as Magid demonstrates, is that divine will permeates even what appears to be autonomous human choice. When the Mei HaShiloach calls Shabbat the "choicest time," he is not merely ranking moments on a scale of holiness. He is saying that Shabbat is the temporal dimension at which the illusion of autonomous temporal flow becomes most transparent to its source in divine will. On Shabbat, the radical providentialism that the Izhbitzer perceives in all of reality becomes experientially available: the practitioner can sense that time is not self-generating but is sustained, moment by moment, by a will that transcends it.

This connects to the Mei HaShiloach's distinctive antinomian tendencies, which Magid has analyzed with care (27). If divine will permeates all temporal experience, then the sharp boundary between "sacred" and "profane" time is, at the deepest level, illusory—not because all moments are equally holy, but because all moments are equally sustained by the same divine will. Shabbat's distinctiveness lies not in possessing a holiness absent from the rest of the week but in making visible a holiness that is always present but typically concealed. This is a radicalization of the Meor Einayim's theology of immanent divine light: the Mei HaShiloach extends it from a visual metaphor (light becoming visible) to a volitional one (divine will becoming perceptible).

## Noam Elimelech and Degel Machaneh Ephraim: Complementary Voices

Two additional Hasidic voices merit attention for their contributions to Shabbat-time theology. R. Elimelech of Lizhensk, in his Noam Elimelech, develops a theology of the tzaddik's role in drawing down Shabbat-consciousness for the community (51). For R. Elimelech, the tzaddik is one who has so thoroughly refined the temporal dimension of experience that the Shabbat quality of "above time" becomes, through the tzaddik's presence, available to others. Idel's analysis of the "magical" dimensions of Hasidic leadership is relevant here: the tzaddik does not merely teach about temporal transcendence but mediates it, functioning as a living bridge between ordinary and sacred time (9).

R. Moshe Chaim Ephraim of Sudilkov, grandson of the Baal Shem Tov and author of Degel Machaneh Ephraim, preserves teachings that connect Shabbat-time directly to the Baal Shem Tov's founding vision (52). In these teachings, Shabbat is associated

with the Baal Shem Tov's central insight that the Hebrew letters—the building blocks of creation—are continuously sustained by divine energy. On Shabbat, the flow of this energy shifts: the letters, as it were, return to their source, and the practitioner who attends to this return experiences the world's temporal texture as transparent to its origin. Jonathan Garb's studies of experiential states in Kabbalistic practice provide analytical frameworks for understanding how such descriptions of temporal transformation correlate with actual contemplative states (34).

## The Phenomenology of Shabbat-Consciousness: A Synthetic Reading

Drawing these Hasidic voices together, we can identify a coherent phenomenology of Shabbat-time that operates at several levels simultaneously. First, at the perceptual level: Shabbat alters the quality of temporal perception. The week's consciousness is characterized by succession, urgency, and the experience of each moment as displaced by the next. Shabbat-consciousness, as described by the Meor Einayim and the Sefat Emet, replaces this with a quality of luminous presence—each moment experienced not as a vanishing point but as a disclosure of depth.

Second, at the volitional level: Shabbat transforms the practitioner's relationship to agency. As the Maggid and R. Shneur Zalman emphasize, the cessation of melakhah (creative work) on Shabbat is not merely a halakhic obligation but a spiritual discipline—a weekly practice of relinquishing the ego's compulsive drive to manipulate, produce, and control. This relinquishment is the inner condition for the perceptual shift: as long as the self is grasping at the next moment (planning, anticipating, worrying), the depth-dimension of the present remains inaccessible.

Third, at the ontological level: Shabbat re-discloses the world's dependence on its divine source. The Kedushat Levi's testimony-theology, the Sefat Emet's "inner point," and the Mei HaShiloach's radical providentialism all converge on this claim: Shabbat is "beyond time" because it reveals that time is not self-grounding. The apparent autonomy of temporal succession—the feeling that the world runs on its own, that time is an independent medium within which events simply happen—is, on the Hasidic reading, an illusion that Shabbat gently and repeatedly exposes.

Fishbane's concept of sacred attunement provides a useful integrative frame for this phenomenology (6). In Fishbane's terms, Shabbat is the weekly practice of attunement to the depth-dimension of temporal reality—a hermeneutical discipline in which the practitioner learns to "read" time differently, perceiving within the flow of succession the presence of a sustaining ground. Wolfson's language of "luminal darkness"—the paradoxical coexistence of concealment and disclosure—further enriches this picture: on Shabbat, time becomes luminally dark, transparent precisely in its depth, revealing precisely by ceasing to insist on the surface narrative of one-thing-after-another (49).

Moshe Idel's framework of "absorbing perfections" is also pertinent here (29). Idel has argued that the Kabbalistic and Hasidic hermeneutical traditions operate by "absorbing" multiple interpretive layers into a single textual or experiential moment, creating a density of meaning that ordinary, linear reading cannot achieve. Shabbat-consciousness, on this model, is a temporal form of absorbing perfections: the practitioner absorbs the multiplicity of the

week's fragmented moments into the unity of the Shabbat present, experiencing time not as a succession of discrete instants but as a gathered, integrated whole.

## A Careful Bridge: Feynman's Physics of Time

The bridge from Hasidic theology to modern physics must be constructed with care. The claim is not that Feynman's physics proves Hasidic theology, or that Hasidic insights anticipate relativity or quantum mechanics. Such claims are intellectually irresponsible and serve neither tradition well. The claim, rather, is analogical: Feynman's treatment of time provides a modern intellectual resource for understanding why the Hasidic intuition that "one linear story" is not the deepest description of reality is not naive or pre-scientific but resonates, at the level of structure, with discoveries in theoretical physics. Franz Rosenzweig, in a different context, understood that the temporality of revelation cannot be reduced to the temporality of clock-time, and that this non-reduction is not irrationalism but a deeper rationality (28).

## Relativity and the Non-Universality of Time

In the Feynman Lectures on Physics, Feynman emphasizes that time, like all physical quantities, must be defined operationally: time is what clocks measure, and clocks in different frames of reference measure different intervals (21). This operational epistemology is itself significant: it means that physics does not offer a metaphysical guarantee that "time" is a single, universal, self-evident flow. The special theory of relativity, which Feynman presents with characteristic clarity, demonstrates that the rate of temporal passage depends on the relative motion of observer and observed—that simultaneity is frame-dependent, and that the "now" is not absolute (21, 47).

In his discussion of spacetime units, Feynman shows how time and space can be measured in compatible units (setting c = 1), revealing the deep interweaving of temporal and spatial dimensions that ordinary intuition separates (21). The point is not that "time is an illusion"—a popular misreading of relativity—but that time's apparent character as a uniform, universal river is a product of the human perceptual apparatus operating at everyday velocities, not a feature of reality at its deepest level.

The analogical bridge-point is this: if even physics reveals that "time" is not metaphysically univocal—that it depends on frame, measurement, and context—then the Hasidic claim that Shabbat discloses a different quality of temporal experience becomes philosophically less exotic than it might initially appear. The physicist who has internalized relativity has already learned to hold multiple temporal perspectives simultaneously; the Hasidic practitioner on Shabbat is doing something structurally analogous, though in a different register and for different purposes.

## Path Integrals and the Sum over Histories

Feynman's path-integral formulation of quantum mechanics, developed in his classic text with Albert Hibbs, provides an even more suggestive analogy (22). In the path-integral framework, the amplitude for a quantum particle to travel from point A to point B is calculated not by following a single, definite trajectory but by summing over all possible paths the particle might take, weighted by a phase factor that depends on the action associated with each path. The classical trajectory—the single path predicted by Newton's laws—emerges as the path of "stationary phase," around which the contributions of neighboring paths constructively interfere, while the contributions of wildly divergent paths

cancel out (22, 23).

This has a profound structural implication. The single, determinate, classical path—the "one story" that the world tells at the macroscopic level—is not fundamental. It is emergent—a product of the constructive interference of many paths, most of which are never individually observed. The classical world of definite trajectories and single narratives is real (it is the stationary-phase limit, not an illusion), but it is supported by and arises from a much wider field of possibility that remains invisible to ordinary observation.

The analogical resonance with Hasidic Shabbat-theology is remarkable—though, to repeat, it is analogy, not identity. Weekday consciousness, in the Hasidic description, is the consciousness of the "classical path": one plan, one timeline, one coercive narrative of cause and effect, one anxious sequence of events in which meaning is hostage to outcome. Shabbat-consciousness, as the Meor Einayim, the Sefat Emet, and the Mei HaShiloach describe it, loosens the grip of this single-narrative tyranny: not because "anything goes" (the wild paths cancel out, after all), but because the world is re-seen from a perspective in which the observed narrative is recognized as emergent from—and sustained by—a wider field of possibility and meaning.

Feynman himself, in The Character of Physical Law, reflected on the strangeness of quantum mechanics with characteristic honesty: the quantum world does not conform to the intuitions of everyday experience, and the physicist must learn to hold this strangeness without prematurely resolving it into familiar categories (23). The Hasidic master on Shabbat is engaged in a structurally parallel discipline: holding the strangeness of a temporality that does not conform to the weekday's anxious insistence on linear progression, without collapsing it back into the familiar.

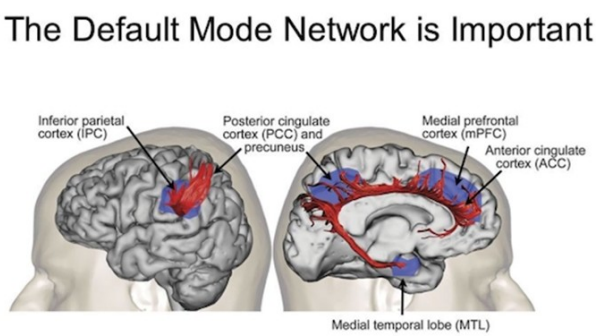
## Analogy, Not Identity: Methodological Caveats

It is essential to articulate clearly what this bridge does and does not accomplish. It does not establish that Kabbalistic or Hasidic theology is "scientific," nor that modern physics is "mystical." Such claims flatten both traditions and serve neither. Relativity and path integrals are mathematical frameworks for predicting experimental outcomes; Binah-consciousness and devekut are spiritual states cultivated through prayer, study, and observance. They inhabit different epistemological registers and answer different kinds of questions.

What the bridge does accomplish is threefold. First, it provides intellectual humility: even in physics, "time" is not as obvious as the nervous system experiences it. Second, it supplies a structural metaphor: the path-integral image of a classical narrative emerging from a wider field of possibility is a powerful contemporary analogy for the Hasidic teaching that the weekday's single narrative is not ultimate but emerges from (and is sustained by) a deeper unity. Third, it offers philosophical space: for a modern reader trained in scientific modes of thought, the Feynman bridge creates conceptual room to take the Hasidic claims seriously as descriptions of a genuine aspect of reality, rather than dismissing them as pre-scientific nostalgia.

Julian Barbour's provocative philosophical argument that "time" as ordinarily understood may not be fundamental to physics at all (48) adds a further layer to this discussion. While Barbour's specific program remains controversial, his willingness to

question the ultimacy of temporal succession from within the physics tradition suggests that the Hasidic intuition—time is not self-grounding—has a structural cousin in contemporary theoretical physics, even if the two arrive at this intuition by radically different paths.




## Time Beyond Time as Spiritual Practice (Avodah)

The foregoing analysis would be incomplete—and, from a Hasidic perspective, unfaithful—if it remained at the level of ideas. Hasidic thought is not speculative philosophy; it is torat hayyim, a living Torah, and its teachings about time are meant to be practiced. Green has consistently emphasized this practical dimension in his interpretation of Hasidic thought: the test of a Hasidic teaching is not its intellectual elegance but its capacity to transform the practitioner's actual experience (4, 14).

Three practical movements emerge from the foregoing analysis, each grounded in specific Hasidic teachings and each reflecting a distinct dimension of the phenomenology of Shabbat-time.

The first movement is the refusal of temporal idolatry. The Kedushat Levi's testimony-theology and the Sefat Emet's insistence that time is not self-grounding converge on a single practical imperative: stop treating time as your god. Shabbat is a weekly discipline of refusing to let productivity, efficiency, and the relentless forward pressure of the clock define reality. This is not laziness or escapism; it is a spiritual practice of the highest order—a weekly declaration that the world's meaning does not reduce to its temporal output. Heschel's formulation remains unsurpassed: the Sabbath is the day on which we attend to the seed of eternity planted in the soul (13).

The second movement is the conversion of sequence into presence. The Meor Einayim's luminous present and the Maggid's devekut-theology both point to a practice of inhabiting each moment of Shabbat—Kiddush, meals, zemirot (table songs), prayer, Torah study, rest—not as a sequence of discrete events but as one sustained dwelling in sanctity. The Zoharic language of union (yihud) is here translated into lived practice: the practitioner unites the moments of Shabbat into a single experience of gathered presence, mirroring the cosmic unification that the Zohar describes at the theosophical level (3).

The third movement is remembering the soul's altitude. The Sefat Emet's teaching that the soul is "above nature and time" and R. Shneur Zalman's distinction between the divine and animal souls both point to a disciplined inner stance: inhabiting the present moment without being possessed by it. This is not dissociation from time but a deeper engagement with it—an engagement freed from the animal soul's reactivity and the ego's anxious clinging to the next moment. Wolfson's analysis of temporal paradox suggests that this stance is itself paradoxical: one enters time more fully precisely by ceasing to be enslaved to it (5, 43).

These three movements correspond to the three levels of the phenomenology identified in Section 4: the refusal of temporal idolatry addresses the onto-

logical level, the conversion of sequence into presence addresses the perceptual level, and the remembering of the soul's altitude addresses the volitional level. Together, they constitute what the Hasidic tradition might call the avodah (sacred work) of Shabbat-time—a comprehensive practice of temporal transformation that engages the whole person.

## Conclusion

The Zohar teaches that Shabbat is the union of levels—upper and lower Shabbat, Binah's unifying mind disclosed in the world. Hasidic thought translates this union into human experience: the soul's re-entry into a register above nature and time, the disclosure of divine immanence within temporal flow, the testimony that time is not self-grounding. Feynman's physics does not prove these claims, but it helps the modern reader maintain intellectual humility: even in physics, time is not what the anxious nervous system assumes it to be.

The deeper point, however, is not about physics at all. It is about what kind of being we become when we enter Shabbat. The Hasidic masters, read through the scholarship of Green, Wolfson, Fishbane, Idel, and Schatz-Uffenheimer, present a vision of Shabbat-time in which the human person is freed from the tyranny of temporal succession—not by escaping time but by discovering, within time, a depth that the week's anxious pace routinely conceals. This is the meaning of "beyond time": not the negation of temporality but its fulfillment, the moment when time arrives at its own meaning and the soul remembers its native altitude.

As Green has written in his own theological voice, the mystical traditions of Judaism are not relics of a pre-modern past but living resources for the construction of a contemporary spiritual life (14). The theology of Shabbat-time—grounded in the Zohar, elaborated by the Hasidic masters, and resonant (analogically) with the deepest insights of modern physics—is such a resource. It invites the modern practitioner not to abandon the world of clocks and calendars but to discover, within that world, a dimension of presence, unity, and meaning that the culture of productivity relentlessly obscures. Shabbat, in the words of the Sefat Emet, is the weekly testimony that the world is more—and deeper—than it seems.

The path-integral metaphor, for all its limitations, captures something essential about this testimony. The classical path—the single, observed narrative of the week—is real but not self-grounding. It emerges from and is sustained by a wider field that remains invisible to the weekday consciousness. Shabbat is the day on which that wider field becomes, if not visible, then palpable—the day when the practitioner senses, in Michael Fishbane's language, the sacred attunement that underlies and sustains all experience (6). In the end, this is what "beyond time" means: not the end of time, but the beginning of presence.

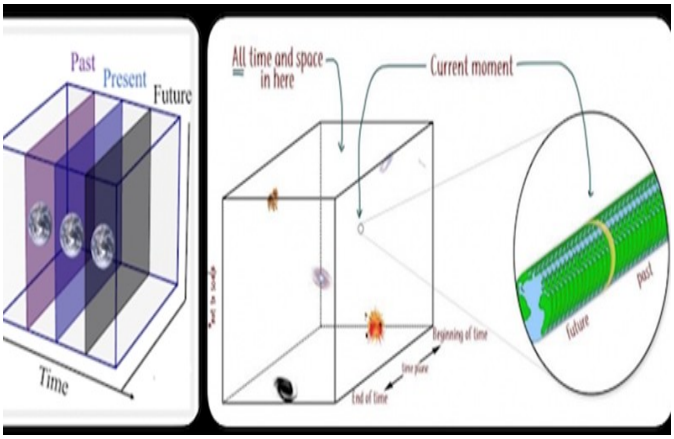

## Addendum: The Dismantling of Naïve Time

### Four Replacements for the Flowing River

The main article constructed a bridge between Hasidic Shabbat-theology and Feynman's physics of time, operating primarily through the path-integral

formulation and the operational epistemology of the Feynman Lectures. That bridge was deliberately delimited: analogy, not identity. This addendum deepens and complicates the physics side of the conversation by situating Feynman's work within the broader framework of Einsteinian relativity, thermodynamic time, and the cognitive neuroscience of temporal perception. The aim is to show that the dismantling of naïve time—the intuitive picture of a single, flowing, universal river—is not a marginal consequence of modern physics but its central and most philosophically unsettling result.

The naïve picture of time, which Feynman himself worked to dismantle in his lectures (96), can be summarized as follows: time is a uniform, universal, one-directional flow that carries all events from past through present to future. This picture has four properties that feel self-evident to ordinary consciousness: time is universal (the same everywhere), flowing (it moves), directional (it goes one way), and experienced (we feel it passing). Modern physics and neuroscience challenge every one of these properties. What emerges is a fourfold replacement: time as event-ordering, time as change, time as entropy gradient, and time as brain-generated experience. Each of these replacements resonates—analogically—with dimensions of the Hasidic theology of Shabbat-time articulated in the main article.




## From Relativity to the Four-Dimensional Block

Einstein's special theory of relativity (1905) demonstrated that measurements of time and space depend on the relative motion of observer and observed (53). But the full metaphysical force of this discovery was articulated not by Einstein himself but by his former teacher Hermann Minkowski, who in 1908 declared that henceforth space and time as independent entities would "fade away into mere shadows," and that only a union of the two—spacetime—would preserve an independent reality (54). This is not a metaphor. In the mathematical structure of special relativity, the three spatial dimensions and the single temporal dimension are woven into a four-dimensional manifold. Events do not "happen" and then vanish; they occupy determinate locations in this four-dimensional structure, just as points occupy locations in three-dimensional space.

The philosophical consequence is the block universe (or "eternalist") interpretation of spacetime. If the four-dimensional manifold is the fundamental reality, then past, present, and future are not ontologically distinct categories. They are, rather, different regions of a single, static, four-dimensional block. The future is not "not yet"; it is simply a region of the block that lies in a particular direction from our current location. The past is not "gone"; it persists as another region. The flow of time—the sense that the present advances, consuming the future and leaving the past behind—is not a feature of the physical universe but a feature of consciousness (55, 56).

Kurt Gödel, in his remarkable contribution to the Schilpp volume on Einstein, pushed this implication further. Gödel constructed solutions to Einstein's field equations in which closed timelike

curves exist—that is, in which a traveler could, in principle, return to her own past. Gödel argued that if such solutions are physically possible, then the distinction between past and future cannot be an objective feature of reality, and the "lapse of time" is revealed as ideal rather than real (57). While Gödel's specific cosmological model is not believed to describe our universe, his argument from the logical possibility of such solutions to the unreality of objective temporal passage remains a touchstone in the philosophy of time.

Roger Penrose has offered a more nuanced reading. In The Emperor's New Mind, Penrose acknowledges the force of the block universe argument while insisting that quantum mechanics introduces genuine indeterminacy—and therefore genuine "becoming"—into the physical picture (58). The block, on Penrose's view, may not be fully determined: the future may be genuinely open in ways that classical relativity does not capture. This places Penrose in tension with strict eternalism, a tension that mirrors, at a formal level, the theological tension between divine omniscience and human freedom.

## Analogical Resonances

The block universe is philosophically explosive precisely because it challenges the concepts of becoming, divine intervention, and the efficacy of prayer—concepts central to Jewish theology. If past, present, and future coexist in a four-dimensional block, what becomes of the God who "acts in history"? What becomes of the human being who stands before God in prayer, seeking to alter the future through petition?

These questions are not new to Jewish thought, even if their formulation in the idiom of relativity physics is novel. The medieval Jewish philosophers—Maimonides above all—wrestled with the tension between divine omniscience (which implies that the future is, in some sense, already "known" and therefore "fixed") and human freedom (which requires that the future be genuinely open). The block universe can be read as a physical instantiation of the divine perspective: the view from outside time, where all moments are co-present. Wolfson's analysis of temporal paradox in Kabbalistic thought is directly relevant here: the Kabbalists, particularly in their treatment of divine foreknowledge and the sefirah of Binah, developed frameworks for holding together the co-presence of all temporal moments with the reality of temporal succession as experienced from within (92).

The Hasidic response, as articulated in the main article, is distinctive. The Sefat Emet's teaching that Shabbat grants access to a register "above nature and time" can be read, in light of the block universe, as a phenomenological claim about what it is like to glimpse—momentarily, imperfectly, through the medium of sacred practice—the perspective from which all moments are gathered into unity. This is not the physicist's four-dimensional manifold; it is the Binah-consciousness of the Zohar, in which the many are re-read as one. But the structural resonance is real: both the block universe and Binah-consciousness describe a vantage point from which temporal succession is not the final word.

George Ellis and Tony Rothman have proposed a mediating position: the "crystallizing block universe," in which the past is determinate (crystallized), the future is genuinely open, and the present is the advancing edge of crystallization (87). This model preserves the block for the past

while maintaining genuine becoming for the future. It is, in effect, a physical model that tracks the religious intuition that what has happened is fixed while what is to come remains responsive to action, prayer, and will. Green's neo-Hasidic theology, with its emphasis on divine becoming and the creative partnership between God and humanity, finds a structural cousin in the crystallizing block (93).


## Entropy and the Arrow of Time: Why "Forward"?

### The Second Law and the Problem of Initial Conditions

If the block universe challenges the universality and flow of naïve time, the Second Law of Thermodynamics addresses its directionality. The fundamental equations of physics—Newton's laws, Einstein's field equations, the Schrödinger equation, quantum field theory—are time-symmetric: they work equally well run forward or backward. Nothing in these equations singles out a preferred temporal direction. If you filmed a billiard ball collision and ran the film in reverse, the reversed sequence would obey the same physical laws as the original (59).

Yet our experience of the world is overwhelmingly asymmetric. Eggs break but do not spontaneously reassemble. Ice melts in warm rooms. We remember the past but not the future. The source of this asymmetry, according to the dominant view in physics, is not the laws themselves but the initial conditions of the universe. The universe began—at or near the Big Bang—in a state of extraordinarily low entropy, and the Second Law of Thermodynamics dictates that entropy (a measure of disorder or, more precisely, the number of microscopic configurations compatible with a given macroscopic state) increases over time (60, 61). Arthur Eddington famously dubbed this the "arrow of time": entropy increase is what gives time its one-way character (62).

But this raises what Huw Price calls the "past hypothesis" problem (59). Why was the universe's initial state one of such low entropy? This is not explained by the Second Law itself, which tells us only that entropy increases from whatever initial state obtains. As Sean Carroll has argued, the low-entropy beginning of the universe is one of the deepest unsolved problems in physics—a "boundary condition" that the laws of physics presuppose but do not explain (60). Penrose has estimated the improbability of the initial low-entropy state at 1 in 10 to the power of 10^ {123}—a number so vast as to be, in Penrose's own word, "stupendous" (63).

David Albert's philosophical analysis of this problem is particularly penetrating. Albert argues that the conjunction of the dynamical laws of physics with the past hypothesis (the claim that the universe began in a low-entropy state) is sufficient to generate all of the temporal asymmetries we observe—including the asymmetry of memory, causation, and intervention (64). If Albert is right, then memory itself is a product of the entropy gradient. We remember the past because remembering requires physical records, and physical records are possible only in a universe where entropy was lower in the past than it is now.

## The Destabilizing Corollary: Memory, Entropy, and Reversal

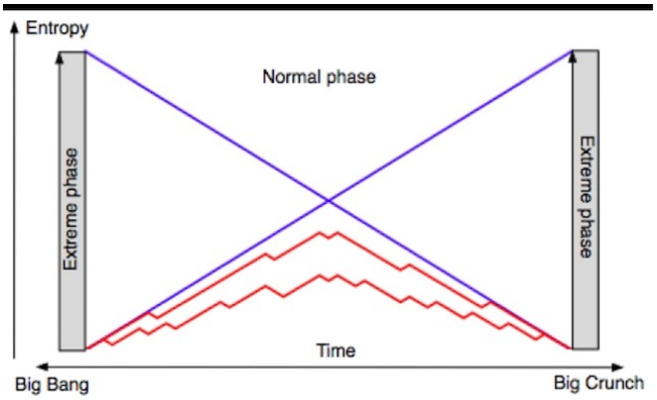
This leads to a genuinely destabilizing thought experiment. If the arrow of time is grounded in the entropy gradient, and if memory depends on that gradient, then in a hypothetical universe where entropy decreased—where the future was lower-entropy than the past—memory would run in reverse. The inhabitants of such a universe would remember what we call the future and anticipate what we call the past. They would experience time as flowing in the opposite direction. And here is the critical point: they would never notice. Their experience of temporal flow would feel exactly as natural and self-evident as ours does. The direction of time, on this account, is not a feature of reality but a feature of our position within reality—a consequence of the entropy gradient in which we find ourselves embedded.

Carlo Rovelli, in The Order of Time, has drawn out the implications with characteristic elegance. For Rovelli, time as we experience it—directional, flowing, irreversible—is not fundamental but thermodynamic: it arises from our interaction with a universe whose entropy happens to be increasing (67). At the most fundamental level—the level of quantum gravity—Rovelli argues that time may not exist at all. The Wheeler-DeWitt equation, the closest thing we have to a fundamental equation of quantum gravity, is timeless: it contains no time variable (70, 71). Time, on Rovelli's view, is what we perceive when we cannot see the full quantum-gravitational picture—when we are, as it were, trapped inside the block.

## The Theological Analogy

The theological resonance is striking. The Hasidic masters' insistence that weekday time is not self-grounding—that it depends on a sustaining source of which we are normally unaware—finds a structural parallel in the physicists' discovery that the arrow of time is not self-grounding either. The direction of time depends on initial conditions (the past hypothesis) that the laws of physics presuppose but cannot explain. Just as the Sefat Emet teaches that time's apparent autonomy is an illusion concealing its dependence on divine vitality, so the physicist discovers that time's apparent directionality is contingent on a boundary condition whose origin remains mysterious.

The analogy should not be pressed too far. The Sefat Emet's "divine vitality" is a theological claim about the sustaining ground of all reality; the physicist's "past hypothesis" is a boundary condition in a mathematical framework. They are not the same thing. But they share a structural feature: both reveal that what appears self-evident about time—its direction, its flow, its autonomy—is in fact dependent on a deeper ground that ordinary experience conceals. Shabbat, in this reading, is the weekly practice of remembering that dependence—the practice of refusing to let the entropy gradient masquerade as the whole story.




## The Illusion of "Now": Relativity and the Collapse of the Global Present

Perhaps the most counterintuitive consequence of special relativity is the relativity of simultaneity. In

Newtonian physics, "now" is absolute: at any given moment, there is a single, universal present that extends across the entire universe. All observers agree about which events are happening "at the same time," regardless of their state of motion. Special relativity destroys this picture. Two observers moving relative to each other will disagree about which distant events are simultaneous with a given local event. There is no fact of the matter about which events are happening "now" at a distant location; the answer depends on the observer's frame of reference (53, 96).

The implications are severe. If "now" is observer-dependent, then there is no objective global present—no cosmic knife-edge of "the present moment" advancing uniformly through the block. What one observer calls "now" at a distant star, another observer (moving differently) calls "past" or "future." Hilary Putnam and C.W. Rietdijk argued independently in the 1960s that this entails a strong form of eternalism: if what is "future" for me is "present" (and therefore real) for some other observer, then the future is real—it exists, even if I cannot yet perceive it (55, 56).

Craig Callender has offered a helpful overview of the philosophical stakes. In his analysis, the relativity of simultaneity does not necessarily prove eternalism (the view that all times are equally real), but it does fatally undermine presentism (the view that only the present moment is real) as standardly formulated (84). The present, if it exists at all in physics, is local—confined to the observer's immediate neighborhood—and cannot be extended to a global surface of simultaneity without choosing a preferred frame, which relativity prohibits.

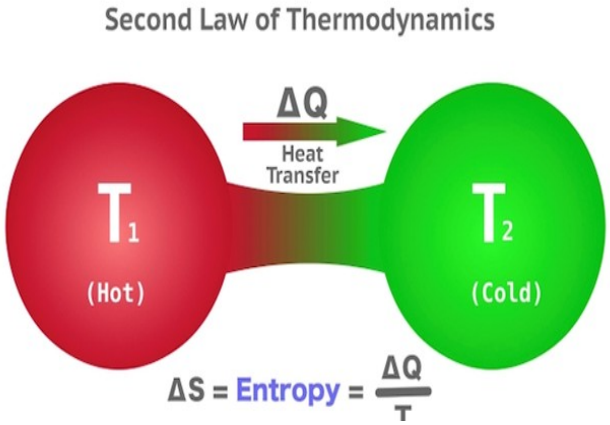
## "Now" as Local and the Mystical Present

The destruction of the global present has a paradoxical resonance with mystical accounts of temporal experience. The Hasidic masters do not speak of a "cosmic now" in the physicist's sense, but they do speak of a quality of presence—a depth-dimension of the present moment—that is available only locally, in the immediate experience of the practitioner. The Meor Einayim's "luminous present," as discussed in the main article, is not a claim about the objective temporal structure of the universe; it is a description of what happens when the practitioner's awareness is gathered into the immediate, concrete, sensory, and spiritual reality of this moment, here.

Physics says: "now" is local, not global. Hasidism says: sacred presence is local, not abstract. The convergence is structural, not substantive—physics and mysticism arrive at the locality of the present for entirely different reasons—but the convergence is nevertheless suggestive. It implies that the modern intellectual who has internalized the relativity of simultaneity is, in a certain sense, better prepared to understand the Hasidic emphasis on concrete, embodied, local presence than is the Newtonian thinker who imagines a single cosmic "now" extending uniformly across the universe. Heschel's insistence that the Sabbath is an architecture of time rather than space takes on additional depth in this context: the Sabbath's sanctity is not spread across a cosmic surface of simultaneity but is concentrated in the here of the practitioner's embodied experience (95).

Jenann Ismael's work on the "situated self" provides a philosophical framework for understanding this convergence. Ismael argues that the experience of being a self-located in time—with a past, a present, and an anticipated future—is a perspective-

dependent feature of consciousness, not an objective feature of the physical world (85). The "now" is not a property of the universe but a property of the observer's epistemic situation. This aligns with the Hasidic phenomenology: the "now" of Shabbat is not a cosmic event but a quality of attention that the practitioner cultivates through the disciplines of rest, prayer, and sacred eating.

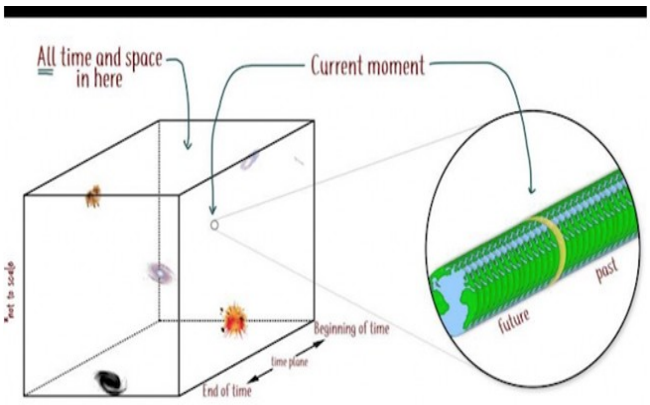



## Alternative Theories: Smolin's Realism about Time

The block universe and the thermodynamic arrow represent the dominant view among theoretical physicists, but the dominance is not unanimous. Lee Smolin, in Time Reborn, mounts a sustained and provocative challenge. Smolin argues that the block universe is a mathematical artifact—a consequence of the fact that physics has been built on the model of timeless mathematical laws applied to initial conditions—and not a genuine feature of physical reality (65). For Smolin, time is real, fundamental, and irreducible. The present moment is ontologically privileged. The future is genuinely open. And—most radically—the laws of physics themselves may evolve in time (65, 86).

Smolin's argument proceeds on several fronts. First, he challenges the assumption that the laws of physics are eternal and immutable. If the laws are themselves products of time—if they emerged from processes that occurred in the early universe and could, in principle, change—then time cannot be reduced to a dimension within which eternal laws operate. Time would be more fundamental than the laws it gives rise to. Second, Smolin argues that the block universe, by treating the future as already determined, renders cosmological explanation vacuous: if everything is already "there," then there is nothing to explain (66).

Smolin's position has significant theological resonance. The Jewish theological tradition, as articulated by Heschel and elaborated by Green, insists on the reality of becoming—on the genuine openness of the future to divine and human agency (93, 95). A block universe in which the future is already fixed is difficult to reconcile with the God who responds to prayer, who is moved by human action, who enters into genuine relationship with creation. Smolin's realism about time, whatever its merits as physics, is more hospitable to this theological vision than the strict eternalism of the block universe.




## Quantum Gravity and the Dissolution of Time

A different challenge to the dominant view comes from quantum gravity—the as-yet-incomplete project of unifying quantum mechanics with general relativity. Several approaches to quantum gravity suggest that time, as we experience it, is not fundamental but emergent.

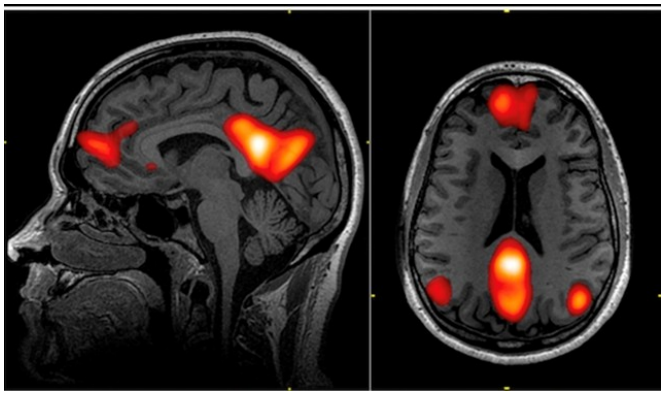
The Wheeler-DeWitt equation, derived by Bryce

DeWitt from the canonical quantization of general relativity, is the most dramatic example. This equation—the closest candidate for a "wave function of the universe"—contains no time variable at all (71). The "problem of time" in canonical quantum gravity is precisely the puzzle of how to recover the time-dependent physics we observe from a fundamentally timeless equation (70). Chris Isham's influential review of this problem catalogues more than a dozen distinct strategies that physicists have proposed, none of them fully satisfactory.

Rovelli's thermal time hypothesis represents one of the more creative proposals. Rovelli suggests that what we call "time" is the parameter that emerges when a physical system is described in terms of its thermodynamic (equilibrium) properties, rather than in terms of its fundamental (quantum-gravitational) degrees of freedom (67, 68). Time, on this account, is neither an illusion nor a fundamental feature of reality but an emergent property—real at the macroscopic level we inhabit, but absent from the fundamental description.

Julian Barbour's program is more radical still. In The End of Time, Barbour argues that time is entirely eliminable: the fundamental ontology consists of "nows"—instantaneous configurations of the universe—with no temporal ordering between them (69). What we experience as the passage of time is a consequence of the structure of these configurations, not of any actual passage.

The diversity of these proposals is itself significant. It shows that the physics of time is not a settled matter but an active frontier of investigation. The "time is an illusion" narrative, while influential, represents one position within a lively and unresolved debate. For the purposes of the dialogue with Hasidic theology, this diversity is important: it means that the physics does not dictate a single metaphysical conclusion but opens a space of possibilities within which theological and philosophical reflection can operate with integrity.



## Neuroscience and Subjective Time: The Construction of Temporal Experience

If physics dismantles the objective flowing river of time, neuroscience reveals that the subjective river—the felt experience of temporal flow—is itself a construction of the brain rather than a transparent window onto temporal reality. The research of David Eagleman and others has demonstrated that temporal perception is not a direct readout of an internal clock but a post-hoc reconstruction, assembled by neural processes that can be experimentally manipulated (72, 73).

Marc Wittmann's comprehensive study Felt Time synthesizes the evidence. Subjective duration—how long a given interval "feels"—depends on a constellation of factors: attentional allocation, emotional valence, memory encoding density, interoceptive awareness, and neurochemical state (74). The dopaminergic system plays a central role: Warren Meck's work on the neuroanatomical localization of interval timing has shown that mesolimbic and nigrostriatal dopamine pathways are critical for temporal processing, and that manipulations of dopamine levels systematically alter time perception (80). Antonio Damasio's somatic mark-

er hypothesis further implicates the body in temporal experience: the feeling of time passing is intimately bound up with interoceptive signals—heartbeat, breath, proprioception—that constitute the body's ongoing self-monitoring (75, 76).

Several specific findings are relevant to the dialogue with Hasidic thought:

Fear and danger stretch subjective time. Eagleman's experiments with participants in free-fall situations demonstrated that during high-fear events, subjects reported dramatically elongated subjective durations, though their actual perceptual processing speed did not increase (72). The stretching is a post-hoc effect of denser memory encoding: more memory traces are laid down during emotionally intense events, and the brain interprets this density as longer duration.

Flow states compress time. Mihaly Csikszentmihalyi's foundational research on "flow"—the state of complete absorption in a challenging, intrinsically motivated activity—demonstrated that during flow, hours can pass unnoticed (82). The mechanism involves the suppression of self-referential processing: when the default mode network is quieted by intense task engagement, the brain's self-monitoring (including its monitoring of temporal passage) diminishes.

Trauma fragments temporal experience. Bessel van der Kolk's work on trauma, and the body has shown that traumatic experience disrupts the brain's capacity to organize events into coherent temporal sequences (81). Traumatic memories are stored not as narrative (beginning, middle, end) but as fragments—sensory impressions, emotional states, bodily sensations—that intrude into the present without temporal ordering. The "river" of time, for the traumatized individual, is not merely altered but broken.

Dan Zakay and Richard Block's attentional-gate model of temporal cognition provides a useful framework (83). In this model, subjective duration depends on the amount of attention allocated to time itself: when attention is directed toward time (as in boredom or anxious waiting), the "gate" opens and more temporal pulses are accumulated, making duration feel longer. When attention is absorbed by non-temporal content (as in flow or fascination), fewer pulses are accumulated, and duration contracts.

## The Phenomenological Tradition and Lived Time

The neuroscientific evidence converges with a long tradition of phenomenological philosophy. Edmund Husserl's lectures on the consciousness of internal time (1893–1917) demonstrated that temporal experience is structured not by a sequence of discrete instants but by a continuous flow of "retention" (the just-past held in present awareness) and "protention" (the just-about-to-come anticipated in present awareness) (77). Henri Bergson's distinction between "durée" (lived, qualitative, indivisible duration) and "temps" (measured, quantitative, spatialized time) anticipated many of the neuroscientific findings: Bergson argued that the clock-time of physics is an abstraction from the richer, more fluid temporality of lived experience (78). William James's concept of the "specious present"—the brief interval of time that feels like "now"—further underscored the constructive character of temporal experience (79).

Merleau-Ponty's phenomenology of perception extended these insights to the embodied subject: tem-

poral experience is not a mental overlay on a body situated in objective time but an expression of the body's own being-in-the-world (88). Heidegger's analysis of temporality as the fundamental structure of Dasein (human being-in-the-world) pushed further still: for Heidegger, we do not exist "in" time as objects exist in a container; rather, we are temporal—temporality is the horizon of our self-understanding (89). Levinas, in a move with particular resonance for Jewish thought, reframed temporality through the encounter with the Other: time is not the solitary subject's self-awareness of passage but the opening created by the face of the other person, who introduces genuine novelty—genuine "future"—into a world that would otherwise be closed in upon itself (90).

## Neuroscience and Shabbat-Consciousness

The neuroscientific and phenomenological evidence, taken together, supports a claim that the Hasidic masters would recognize: the "flowing river" of time is not a transparent feature of reality but a biologically generated, neurologically constructed, phenomenologically complex experience. The river metaphor is real—it is how the brain presents temporality to consciousness—but it is not ultimate.

This aligns with the Hasidic phenomenology of Shabbat at multiple levels. The Meor Einayim's description of Shabbat as a mode of intensified perception, in which the divine vitality concealed within temporal flow becomes visible, resonates with the neuroscientific finding that altered states of attention—including meditative and contemplative states—produce genuine changes in temporal experience. The Maggid's devekut-theology, in which the ego's temporal anxieties dissolve in awareness of the divine ground, has a structural parallel in the flow research: when self-referential processing quiets, the felt pressure of time's passage diminishes. The Sefat Emet's teaching that the soul is "above time" can be read, in neuroscientific terms, as a description of what happens when the brain's default temporal construction—the anxious tracking of succession, the compulsive planning and anticipating—is, through the disciplines of Shabbat, temporarily suspended, revealing a quality of awareness that the ordinary temporal construction routinely obscures.

The point is not that neuroscience explains Shabbat-consciousness in a reductive sense. Neural correlates of temporal experience are not the same as the spiritual realities that the Hasidic masters describe. But the neuroscientific evidence does something important: it demonstrates, on strictly empirical grounds, that the "flowing river" of naïve time is a construction, not a given. This removes what might be called the naïve-realist objection to Hasidic Shabbat-theology: the objection that says, "Of course time flows—I can feel it." The neuroscientist's answer is what you feel is a construction, and constructions can be constructed differently.

## The Deep Tension: Physics, Existence, and the Unresolved Question

We arrive at the fundamental tension. On one side stands the picture assembled by modern physics: no flowing present, no universal "now," possibly no time at all at the most fundamental level—just a four-dimensional structure (or a timeless quantum-gravitational state) in which the appearance of temporal flow is generated by entropy increase and neural construction. On the other side stands the phenomenology of human existence: becoming, choice, irreversibility, responsibility, love, grief, prayer—all of which presuppose that time is real, that the present is privileged, that the future is open,

and that what we do matters.

This tension is not a problem to be solved but a reality to be inhabited. Physics does not refute the lived reality of temporal experience; it reveals that the lived reality is more complex, more layered, and less self-evident than ordinary consciousness assumes. The Hasidic masters, working from within a different tradition and with different tools, arrived at a structurally similar conclusion: the ordinary experience of time—the week's anxious succession of one-thing-after-another—is real but not ultimate. Beneath it (or above it, in the Sefat Emet's spatial metaphor) lies a deeper register in which time is gathered, integrated, and transparent to its source.

Fishbane's concept of "sacred attunement" offers a way of holding this tension without resolving it prematurely (94). Attunement does not deny the reality of the world it attunes to; it deepens that reality by adding a dimension of receptive listening. Similarly, the Hasidic theology of Shabbat-time does not deny the reality of temporal succession; it deepens it by disclosing a dimension of presence, unity, and dependence that the week's busyness conceals. And physics, far from undermining this disclosure, provides independent evidence that the surface picture of time—the picture that Shabbat-theology challenges—is indeed a surface picture, resting on depths (entropy gradients, frame-dependent simultaneity, neural constructions) that ordinary consciousness cannot see.

The deep tension between the physicist's timeless block and the human reality of becoming thus mirrors, at a formal level, the Zoharic tension between the upper Shabbat (Binah's integrative mind, where all is gathered into unity) and the lower Shabbat (Malkhut's interface with the world of becoming, where time is lived and suffered). The Zohar does not resolve this tension by choosing one pole over the other; it holds them in paradoxical union. The physicist, too, lives in this tension: professionally inhabiting the timeless equations while personally experiencing the irreversible flow. Feynman's own honesty about the strangeness of quantum mechanics—his insistence that the physicist must hold the counterintuitive truth without explaining it away (98)—is itself a kind of intellectual Shabbat: a weekly discipline of letting reality be more than the anxious mind demands.

In the end, what Hasidic Shabbat-theology and the physics of time share is not content but posture. Both demand that we relinquish the naïve picture. Both insist that what feels most self-evident about time is not the last word. Both open a space—the Hasidic master through avodah and devekut, the physicist through mathematics and experiment—in which a deeper, stranger, more truthful relationship with time becomes possible. That neither tradition can fully articulate what lies in that space is not a failure but a sign of its depth.

Richard Sorabji, in his magisterial study of time in ancient and medieval philosophy, observed that every great civilization's philosophy of time reveals its deepest assumptions about the nature of reality (91). The dialogue between Hasidic Shabbat-theology and contemporary physics, constructed here with due care for the integrity of both traditions, reveals an assumption they unexpectedly share: that the human experience of temporal flow, for all its vividness and urgency, is a penultimate description of reality—and that the ultimate description, whether it is called Binah or the block universe or the timeless equation, remains at once the deepest object of inquiry and the most elusive.

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