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Beckett's Calculus of the Subject: the Performance of Spatial and Self-relations in …*but the clouds*…

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I

> in sense-certainty, pure being at once splits up into what we have called the two 'Thises', one 'This' as 'I', and the other 'This' as object. When *we* reflect on this difference, we find that neither one nor the other is only *immediately* present in sense-certainty, but each is at the same time *mediated:* I have this certainty *through* something else, viz. the thing*;* and it, similarly, is in sense-certainty *through* something else, viz, through the 'I'.
>
> When I say 'this Here', 'this Now', or a 'single item', I am saying all Thises. Heres, Nows, all single items. Similarly, when I say 'I', this singular 'I', I say in general all 'Is'; everyone is what I say, everyone is 'I', this singular 'I'.
>
> (G. W. F. Hegel, *The Phenomenology of Spirit*)

Beckett's oft-quoted statement from *Disjecta* comparing aesthetic aporia to "Pythagorean terror" assesses a situation in which the artistic imperative toward expression is challenged by a lack of occasion and means to realize it. In his discussion, the artist's attempt to "escape from this sense of failure" manifests as a fusion of subject and object in which "relations between representer and representee" become increasingly "less exclusive" (*Disjecta* 145). Reason balks at the exacting nature of artistic labour that manifests as this tendency of the work to consume the artist. Beckett defines as "a kind of Pythagorean terror" the aporia accompanying this loss of identity (145), and his metaphor connects the epistemes of aesthetics and mathematics as natural human responses to a recalcitrant universe. It suggests that whether humans use the signifiers of art or science, their response to their cosmic situation reflects the singular panic of Pythagoreans, mystics, and aesthetes alike. They behave as though not just "the irrationality of pi" but that of any other situation "were an offence against the deity, not to mention his creature" (145). What is particularly curious about Beckett's assessment is that it produces an unlikely alliance between the inadequacy of materials to the aesthetic task and that incommensurability between circumference and diameter which results in the irrationality of pi. A geometric interpretation of the aesthetic difficulty, it exploits the polysemic nature of the term "irrational," which mingles concepts related both to logic and to measurement. Beckett thus manages to pinpoint an epistemological hub connecting the humanistic and computational disciplines.

Indeed, this hub arguably codifies a logic present in all Beckett's work. The reception history of his literary and dramatic texts places them in a category not unlike that of mathematical texts: a small coterie of specialists and their disciples (students) understand and appreciate his work, while the rest of the world (if prevailed upon to open or view a representative text) looks on askance at the apparently unintelligible material presented within. Yet, Beckett's texts more directly invite mathematical treatment, and while his individual works rarely enjoy close readings, the instances in which critics attempt mathematical intervention are often included in those rare occasions. The repetition that characterizes his writing – a defining trait almost universally recognized by his consumers and critics – has a fairly straightforward mathematical formulation. The seasonal and cyclical phenomena to which Beckett's texts gesture have been connected to Friedrich Nietzsche's "eternal return of the same," Gilles Deleuze's "eternal return of difference," and in cosmic terms (and these phrases are nothing if not cosmic) repeated textual occurrences find analogies (if not allegories) in such natural phenomena as the earth's rotation, planetary motion, species propagation – all of which have received mathematical treatment in the sciences.

Hugh Kenner was among the first to identify and discuss Beckett from a mathematical perspective. In the essays "The Rational Domain" and "The Cartesian Centaur" of his 1961 critical study of Samuel Beckett, Kenner identifies ways in which his texts both conform to and exceed the borders (limits) of formalization. Other critics have built on this foundation. Piotr Woycicki notably identifies Beckett's use of "'Mathematical Aesthetic' as a Strategy for Performance" and discusses the text of *Quad* from the perspective of directed lines known in mathematics as vectors. This perspective was appropriate – even inevitable – as the characters in *Quad* do nothing but walk rigidly prescribed paths along the edges and diagonals of a square setting. Other critics (Audronė Žukauskaitė, S. E. Gontarski) have pointed out Beckett's use of combinatorial relationships to cycle through all the possible arrangements of his characters on stage in plays such as *Play* and *Come and Go* (or in the settings of his novels, such as *Watt*). Brett Stevens and C. J. Ackerley also render noticeable the geometric ideas implicit in Beckett's oeuvre, and Sam Slote pinpoints ideas related to discreteness versus continuity in his use of lighting and shadow to create intensities (and frequencies, one might add) on stage. These concepts also intersect with Thomas Murphy's discussion of closed vs. open spaces via the quadrilateral logic of *Quad* and the cylindrical logic of the short story "The Lost Ones." To these, annex the text under consideration here, Beckett's *...but the clouds...*.

Beckett performs an aesthetico-mathematical treatment of phenomena in his television play *...but the clouds...* (*btc*). The work's lines, curves, and geometries soon resolve into the stringency of a method, as its aesthetic mimics logic and the thrust of its impressions progresses toward intelligibility. Like *A Piece of Monologue*, "it reads like stage directions" (Mercier 69). The text is ostensibly the composition, rehearsal, re-enactment, and editing of a scene or montage, and the narrative voice akin to that of a writer-director. It "revisits the scenario of a man not-quite-alone in his room" already explored with characteristic Beckettian minimalism in *Ghost Trio*, but in a formalist *coup de theatre* it receives here "an even more austere treatment" (Herren 392). The plot follows four characters, a woman W, a man M, and a narrative voice V that influences M's motion (performed as M1) in cardinal directions across a circular set. The purpose of the characters' actions is never clear, but the text establishes well their roles as man, his voice, his presence on the set, and the woman he would like to encounter. M1 performs actions that correspond to the narrative directions given by the voice: he emerges from his sanctum, crosses to his closet to retrieve or shed greatcoat, exits west toward the roads, returns. Repeat. The text rehearses this series of actions that has a certain likelihood of resulting in the appearance of a woman the narrator V and his accomplice M1 try to conjure.

This essay aims at moving *...but the clouds...* beyond the level of mere artistic curiosity. Current discussions of the text centre on its similarity to stage directions and the meta-analytic effect of its being a dramatic text about a rehearsal. Yet these directions, if considered as directives or commands, become algorithmic in their resemblance to a computer program – the lines are numbered, the behaviours loop, and the actions are divided into cases that mimic "if...else" clauses. This observation prompts me as a literary analyst to explore an alternate logic of the text, a mathematical one that would provide a new measure of coherence for Beckett's famously inscrutable subjects – to which *...but the clouds...* provides no exception. Since Descartes, the subject's identity has been understood through its ability to perceive phenomena external to itself, and Kant famously attacks the subject's perception of itself as a physically unified object based solely on its continuous (i.e. logically unified) apprehension of objects external to it (*CoPR* 442). Beckett's ideas were certainly imbued with both Cartesian concepts and their critiques, and his exposure to Hegel's ideas on the subject has been hypothesized (Ackerley and Gontarski 132-35, 250). The discussion in this article couples a subject-object treatment of the characters M and M1 with Hegel's post-Kantian ideas about sense-certainty. It also applies to the consideration of these characters certain mathematical principles related to a function known as the involution and a limiting behaviour known as convergence.

Gilles Deleuze and Felix Guattari use the term involution to describe an action of the subject defined by a general folding in upon itself (*A Thousand Plateaus* 238). In mathematics, this describes any function which, when applied twice to an input (or argument), yields that input it was first given and thereby returns it again to its starting point.[1] For this discussion, the involution's literary instance defines a paradox of the initial and perennial split of the subject's identity. In "Towards a Creative Involution," S. E. Gontarski's discusses this appropriation of the involution as "a complexification of being . . . whose image the works (and its figures) have become" (101). This image marks that fusion of subject with object reflected both in the artist's Pythagorean terror and in the relationship V mediates between M and M1. Gontarski also remarks on involution's relation to evolution, describing it in terms of a reversed Darwinian motion toward simplification and, in Deleuzian terms, as a process of becoming that creates "nothing less than new worlds" (101). He thus pinpoints the diegetic process via which the subject identifies within objects the grounding principles that govern their relations. Turned in upon itself, this process becomes a self-analytic that defines its space (context) in the very act of extracting its own primitives. Such characterizations of involution translate directly to a Hegelian consumption of self by other (and other by self) and, as will be shown, model a process that reduces nominals (objects) to their deictic shells (spaces).

Beckett narrates through his character V a logical disunity whose behaviour mimics involution by routing M's access to himself through those (not necessarily external) objects that come into his purview. Because spatiotemporal considerations are inherent to narrative, the mathematical concepts of function (e.g. involution) and space enjoy a convenient analogical connection not only with Beckett's formalized texts, but arguably also with all narrative objects and their contexts. In considering the behaviour of V as a function, therefore, it is natural also to consider the context of that behaviour in conjunction with the topological concepts of *space* and *measure*. A function draws its arguments from a pool of values denoted collectively as a space – one is perhaps familiar with such phrases as "the space of real numbers" or that of the integers. A function's output also inhabits a space. Measure (associated with familiar concepts of length, area, and volume) records the dimensionality of spaces and supports the identification of specific functions whose movement between those spaces describes their relationship.[2] Finally, input and output spaces may exhibit qualitative similarities or differences depending on the nature of the function that mediates them, and thus the relationship between these spaces (cf. causality or continuity between past and future situations or characters) can be established by classifying the function based on such concepts as its convergence to a limit.

By defining coherence by an alternate metric (and without making the argument that a text's sense is the measure of its value), this functional analysis of *...but the clouds...* hopes to deepen readers' appreciation of Beckett's oeuvre by opening up another dimension of its intelligibility. It presents Beckett's so-called difficult text as commensurate with scientific literature and amenable to treatment by analytic methods. For it argues that by offering a diegetic that relies on performativity, the text functionalizes its dialogue and thereby inherits a dimension of coherence based on logic and calculability. Thus, by exhibiting behaviours associated with involution, measure, and convergence, *...but the clouds...* represents the interplay of its characters as a dialogical calculus of the subject.

Diegesis

For the purposes of this discussion, diegesis identifies a formal interdependence between objects and the spaces they inhabit. A concept pilfered from cinema studies, the diegetic traditionally represents that aspect of the performance considered native to the story, as opposed to such extra-diegetic enhancements as music and other aspects of the border between real and mise en scène. Here it will continue to delineate a story world, but one whose disciplinary manifestations – whether as set, setting, stage, level, sample or crucible – transgress the borders of fiction, theatre, and film. Exceeding its Platonic conception as the mere telling of a story, this story world comprehends both the behaviours an environment makes possible and the limits of that environment as defined (evinced) by the activities occurring within it. Thus, diegesis comes to rely on a definition of world inclusive of physical (mechanical), social (interactive), and hypothetical (fictional) interpretations, and which extends even more broadly to any logical structure or reality in which a narrative, performance, or even statistical event might unfold (Abbott 75).

In the aesthetic disciplines – literature, performance, visual arts, etc. – analysis exists in large part for the purpose of deducing a logic of conversion between a given spatio-temporality and its objects. Diegesis pinpoints as the diegetic this interrelationship whereby aesthetic objects driven by their respective spaces in turn facilitate the discernibility of those spaces by the very fact of their (the objects') presence. Furthermore, peculiar configurations or states of these bodies within the spaces they occupy testify not merely to the uniqueness or contingency of any one performance (or situation or text), but – perhaps more instructively – to the affinity each bears to those autopoietic systems whose mechanics exhibit the form of a logical calculus. For as Brian Rotman recognizes, "what corresponds in mathematics to the empirical reality engaged with by science – mathematics' 'reality' – is already a symbolic domain, a vast field of purely fictive objects" (*Ad Infinitum* 68). The perspective that mathematics exists not merely as a grounding (binding) logic within the scientific disciplines but also as a principle of their separation from the humanities fits directly into C. P. Snow's general assessment of the episteme as comprising two distinct cultures. To accept this premise means also to recognize that any attempt at bridging these epistemological territories benefits from a method of conversion between mathematical and aesthetic objects. In a series of short subsections, this article outlines such a method before turning to an analysis of Samuel Beckett's *...but the clouds...*.

Aesthetic Logic

Not only does Rotman identify as "fictive" objects structured within mathematical spaces, but he also designates as an instance of thought experiments those scriptural activities by which mathematicians manipulate such objects according to the rules of their spaces (*Ad Infinitum* 66). In making this observation, he advances a diegetic conception of this radically logical discipline. For to locate in the discourse of mathematics a "symbolically instituted, mentally experienced narrative" (66), Rotman claims for the discipline the converse of that which Henry Turner claims for drama in his own logical and aesthetic conception of theatrical space. Turner treats theatre's "images, gestures, objects, and other signifying elements" as instances of geometry's curves and polygons, collectively designating them instances of "linguistic and non-linguistic units of representation" (20). For as an environment optimized for simulation – a space of experiment designed to scrutinize human behaviour and social relationships – theatre's role as "a practical epistemology" places it in analogical relation to geometry's (early-Modern) role of supporting the understanding and apportionment of land and space (27). Consequently, not only do geometry's non-linguistic signifying elements admit "fictional" interpretation and rely on the work of the imagination, but they also embody "an entire system of representation to rival that of language" (6). This assessment places geometry within the compass of aesthetics, connecting it not only with those humanist sub-disciplines that do employ linguistic signifiers but also with the several that signify through images, shapes, colours, sounds – i.e. within an already existing humanist tradition of non-linguistic signification. Taken together, then, both claims by Rotman and Turner suggest something akin to a bi-conditional. If, therefore, mathematical spaces produce signifiers – semiotic objects equally suited to narrative and logical operations – then it becomes feasible to apply mathematical methods more broadly to the analysis of these other forms of signification. The diegetic explores this cross-disciplinary frontier as a function space that extends the humanities' epistemological capabilities by adding a calculable element to its aesthetic methods of situational analysis.

Performance

In "Dramaturgy and Montage," Eugenio Barba describes (as the contribution of the performer) the development of a repertoire of pre-established gestures or process-objects, which then becomes available as discrete and concatenable objects in the construction of various performances. Barba treats each process-object somewhat like an undefinable primitive in an axiomatic system, claiming that since the "original 'truth' or 'motivation' of that behaviour can be lost" the collection and rearrangement of these ensure that "the strips of behaviour are themselves no longer processes but objects, *materials*" (Barba 815; emphasis in original). The performances that result from the composition of such primitives participate in that form of proof-by-construction which Jan Brouwer considers a method of mathematical fictionalization that creates an object based on a world with which it is consistent (Rotman, *Ad Infinitum* 5). Charles Sanders Peirce expresses a similarly aesthetic conceptualization of mathematics, asserting that prior to knowledge production, which occurs only after the performance of a proof or experiment, "the mere creation of a hypothesis may be a grand work of poietic genius" (qtd. in Turner 43).[3] Such statements support the conjecture that even mathematical structures, with their primitive axioms and rules for manipulating objects, admit aesthetic treatment. Such aesthetic treatment might then construe the varieties of mathematical discourse as performance narratives that contain as characters those fictive objects for which any demonstration (or proof) of their consistency within their respective spaces is tantamount to a plot.

Like Barba, Brouwer, and Peirce's demonstration of the intrinsic narrative structure of the processual object, Henry Turner's historiography of the concept of plot uncovers in the origins of its treatment a functionalized object (Turner 21). Its mathematical underpinning becomes apparent when one recognizes that the diegetic story world, in its early incarnation as plot, migrated from the geometric discourse of surveyors to the theatre via its appropriation as "a schema of stage action . . . posted in the backstage area to subdivide the narrative action of the play into the entrances and exits of the actors, all within carefully ruled columns and boxes" (Turner 23). This statement defines the plot as a delimitation of the world by the very actions taking place in it and underscores an interrelationship between space and narrative action that persists in the mingling of those two concepts in contemporary uses of the term. Yet this definition of plot also describes an interface between (i) players-as-actors and players-as-characters on stage – a self-as-other relation, and (ii) the stage and the house – a self-other relation.

Interface

Maggie B. Gale's discussion of performance studies' historical avant-garde assesses the theoretical and practical achievements of Bertolt Brecht, whose ideas on performance served to "fundamentally redefine the relationship between the stage and the audience" (335). Brecht envisioned a one-to-one (or one-on-one) intra-subjective theatre in which the proscenium comprises not a barrier but an interface between audience and performer, one that encourages a more interactive relationship between the two. When the performer manages to breach this interface efficiently enough to assimilate the audience, she does this in her role as an extension of the actor. Yet because as an actor herself, she assimilates the concepts of self and other, then a composition of her functions as both actor and performer produces a situation in which this performer (comprising now both self-and-other and self-as-other) evinces a subjectivity that straddles the proscenium and simultaneously inhabits both stage and house. An important pursuit of performance studies is the achievement of this condition whereby the performance subsumes the entire theatre. The curious subject-relation-avatar (M-V-M1) structure of the characters M, V, and M1 in *...but the clouds...* suggests that such convergence also represents an important thematic element of Beckett's teleplay – this notwithstanding the digitized, delayed (and therefore less immediate) nature of its televised format.

II

Measure

> Does the imagination dwell the most
> Upon a woman won or woman lost?
> *The Tower*, W.B. Yeats

Highly function-oriented and quantitative, *...but the clouds...* imposes measurements upon the set as the space of its action. At the outset, Beckett prescribes for this setting a lighting effect that graduates in intensity from circumference to centre, and with it introduces a diegetic principle that animates his characters on stage (*btc* 258; diagram reproduced in Figure 1, below). The distinction provided by the shadow's delineation of the circle as the space of action produces a highly formalized version of a set. In fact, following the direction of reduction taken in limiting a scene to its diegetic element, this play of light and dark takes the process even further. For Beckett quite deliberately reduces the organic environment to formal structures: cardinal directions, points, circle,

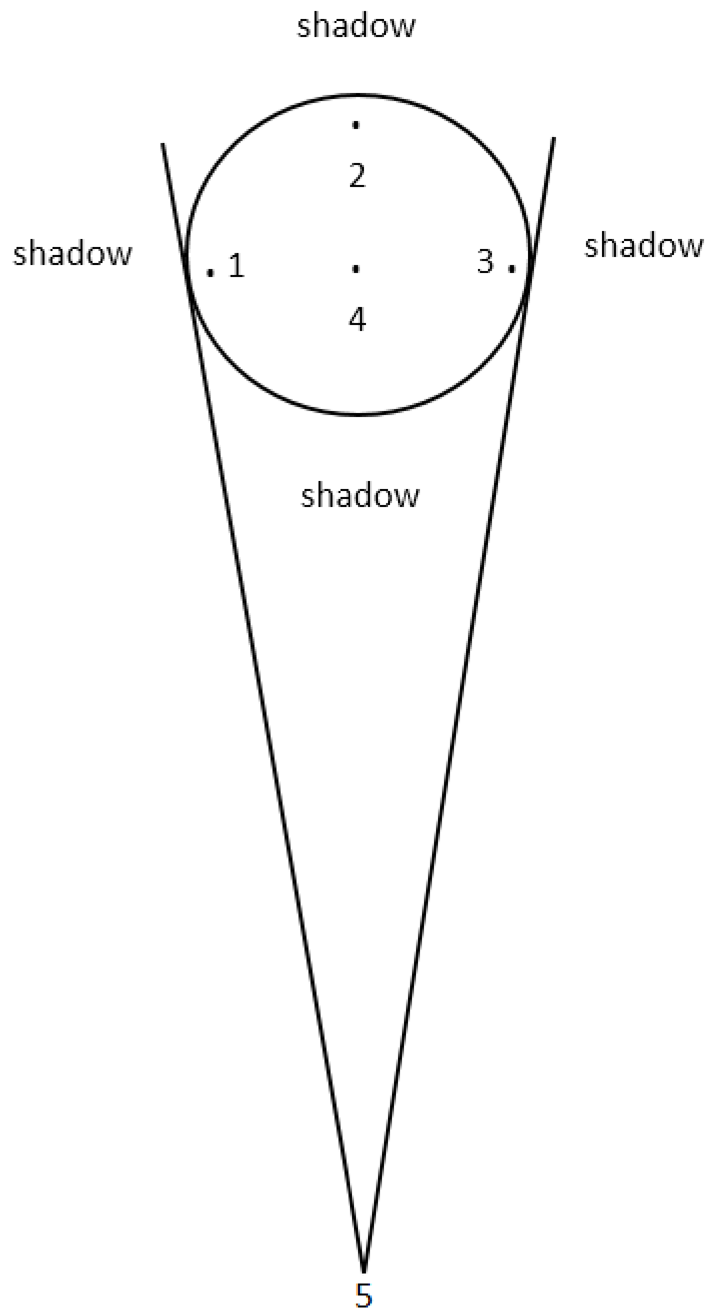

Fig. 1.
Samuel Beckett. "Set and Camera Angle." "*...but the clouds...*", *Collected Shorter Plays: Samuel Beckett*, Grove Press, 1984, p. 258. Reproduced under fair dealing agreement.

angle, and degrees of light and dark, so that the static diagram included in the text represents a limit of the prescribed changes in these variables (*btc* 258). It is a dynamic play of light versus dark that resolves to the still image Beckett describes as "circular, about 5 m. diameter, surrounded by deep shadow" (258), and via which he provides the analyst all the information necessary not only to calculate its area, but also to infer additional logical principles, such as the space's topological structure. Thus, the principle of mensuration as a diegetic one becomes apparent in the specificity with which he designates the set's fixed dimensions as the vessel for the animation of the plot.

While the character M is relegated to a space outside the set and merely represented in set by M1, because he is also owner of the narrative voice V, M might be considered an ideal subject of the text. Yet it is M1's systematic motion that almost entirely constitutes the narrative by being not merely the focus of the stage directions but also that of the text's dialogue. Being repeated almost verbatim elsewhere in the text, this excerpt from the opening discloses much of what occurs in the later sections:

> M1 in hat and greatcoat emerges from west shadow, advances five steps and stands facing east shadow. 2 seconds. He advances five steps to disappear in east shadow. 2 seconds. He emerges in robe and skullcap from east shadow, advances five steps and stands facing west shadow. 2 seconds. He turns right and advances five steps to disappear in north shadow (259-60).

M1's restriction to the figured setting reduces the narrative to an exercise in mensuration: much comes down to the question of quantity – how much time, how many paces. The epigraph[4] poses – though quite indirectly – a question of temporal quantification which, if these measurements be responses, renders Beckett's geometrical space a stand-in for an equally formal space of the imagination. And as if to rescue the vague contents of the epigraph from what Norbert Wiener[5] terms the "limbo of badly posed questions" (44), Beckett constructs for M (a subject perhaps directly imported from *The Tower*) a logical proxy, M1, whose measured motions performed in formal space represent a well-posed question – the only kind able to attract an answer with some measure of precision. By etching a path of fixed measurement (five steps) in three directions (west, east, north), M1 suggests not merely the missing south direction, but all others between that complete a 360° rotation in the two-dimensional space. In support of this conjecture, the fixed distance of his travel from the centre toward each pole highlights its role as radius defining his domain as a circle. Such precise motions carve out a geometrically coherent and therefore measurable space of the imagination and supports the epigraph's desired comparison between the significances of woman won versus woman lost. Such comparison requires a workable method of measuring the space of the subject's imagination – the seat of his consciousness. So while the precise relationship the fourth character W bears to these alternate versions of woman is as yet unclear, by grounding the spatio-temporal context for M1's encounters with W, this formal setting prepares also to become that which grounds his subjectivity.

Involution

In *The Grove Companion to Beckett*, S. E. Gontarski and C. J. Ackerley observe that "irrationality is the root of his distrust of the tradition wherein reason is the highest form of consciousness" (348). Accordingly, Beckett's description of the artist's reaction as akin to that of the Pythagoreans' response to pi's irrationality deploys both meanings associated with the term "irrational" in a metaphor that challenges reason's excluded middle – the idea that any statement (about an object or situation) necessarily excludes its direct opposite.[6] Given the complementary relationship M bears to M1, V as mediator typifies an included middle: he embodies that mechanism of complementarity via which observations of the one self does affect manifestations of the other (Plotnitsky 79). Thus the rather absurd concept of a disembodied voice belonging to a split subject models that intra-subjective communication which generates the space of the drama. For by extending to absurdity the calculability not merely of logic – whose boolean mechanism would reduce aesthetic absurdity to a paltry unreason – but of mensuration, Beckett's model of irrationality carves out a more flexible logic. This is a logic of open concepts and open spaces, a topology that comprehends a theatre of the absurd.

Brian Rotman's tripartite categorization of subjectivity provides a heuristic for the roles M, M1 and V. In *Mathematics as Sign*, he represents mathematical exposition (theorems, proofs, etc.) as the construction of a logical context comparable to those narrative contexts created by literary artists (13-14). From the natural language of the human who grounds his existence, the mathematician distills highly formal statements able to support a context within which a logical envoy might then carry out the (often physically impossible) tasks defined in the discourse (10, 13-15). Like the mathematician, V's linguistic register contains many stock phrases from that discipline. Since he is all voice and his very being both reflects M's thoughts and dictates M1's circumnavigations, his function is indeed one of contextualization. Consequently, if M1 embodies V's inscriptions on the set, what Gontarski and Ackerley say of *Murphy* is also true of *...but the clouds...*: "The plot is a 'situation circle'" (349).

In *...but the clouds...*, this formalized context facilitates the subject's encounter with objects. It houses the paradox of a self-awareness that forecloses self-knowledge by dividing self into subject and object, thereby disrupting the oblivion of self-identity – or that state of being which Jacques Lacan describes as a "*function of méconnaissance* that characterizes the ego in all its structures" (194; emphasis in original). M's fixed vantage, given via the "[s]ame shot throughout," suggests a decidedly fixed subject position in the logical space of the text. But when Beckett renders W the "[c]lose up of woman's face reduced as far as possible to eyes and mouth" (257), he provides just enough of her features to facilitate a confrontation with M that catalyses the relation of subject to self. For W's representation (like M) from the same position throughout engenders M's objectification and *ipso facto* undermines his subjecthood (257).

The encounter unfolds thus: as subject, M1 goes confidently out to meet his object, clearly adopting the dominant position in V's statement, "When I thought of her it was always night. I came in—" From this perspective, it is his intentions that govern W's existence as other, and in the activity that follows, M1 attempts to instantiate this vision:

> 4. *Dissolve to* s *empty. 5 seconds.* M1 *in hat and greatcoat emerges from west shadow, advances five steps and stands facing east shadow. 2 seconds* (259).

But in the middle of the act, V falters, and one suspects he begins to understand the double-edged nature of subjecthood. Since W is also seen from a single position throughout the film, V presently betrays a dawning recognition that her status as unmoved (or unyielding) entity makes her a co-claimant to subjecthood (257). He thus halts M1's progress, revizing his posture toward W.

> 5. V: No—
> 6. *Dissolve to* M. *2 seconds*.
> 7. V: No, that is not right. When she appeared it was always night. I came in—
> 8. *Dissolve to* s *empty. 5 seconds.* M1 *in hat and greatcoat emerges from west shadow, advances five steps and stands facing east shadow. 5 seconds* (259).

Rather than ground her existence on his conception of her, he is forced to place her in the subject position, i.e. when she appeared. This reassessment of his role in the generation of W's image grants her autonomy and signals a role reversal between the two. She emerges as potential subject, imparting a counter-position to M1 that precipitates his return motion toward M (who resides in the somewhere shadow). This altered career motivates V's statement, "Let us now make sure that we have got it right" (259), which in turn reiterates the performance. The repeated motion of advance and recoil thus instantiates a Hegelian self-confrontation that perpetually rehearses the subject M's recognition of himself as object M1. This model also accounts for V's role as interface, for M and M1 embody those rivalling "Thises" via which Hegel recognizes sense-certainty as always mediated – just as M as well as M1 (it will be shown) are always given through the involution V. W's simultaneous generation and repudiation of M's subjecthood, therefore, engenders a reflexive subjectivity in the involute self-relation by which subject accesses itself only as (or in the presence of) an object.

At first, W acts as a stand-in for a role M eventually takes on with respect to himself. Meanwhile V, by both prescribing and assessing this behaviour, traces a correspondence between the spaces inhabited by M and M1 that renders him (V) at once the function and its inverse and makes him that which simultaneously describe(s) the bi-directional relationship of each to the other. That is, V traces M1's posture as subject toward W (away from M), but also traces M1's progress as subject-cum-object away from W (toward M). As V's narrative recounts, M1 desperately seeks the appearance of W. The statement "I began to beg, of her, to appear to me" reveals his immediate need of an other to define him, while his subsequent admission, "Such had long been my use and wont" reveals a more expansive – perhaps even eternal need (260). Yet V also recognizes the subject's ability to encounter W only as phenomenon: it is her appearance that conditions his existence, occupying him "[d]eep down into the dead of the night, until I wearied, and ceased" (260). The consequence of cessation, defined for him should W fail to appear, admits both logical and existential interpretations: M1 might as well cease begging as cease being. This dual reading is especially defensible in light of the inorganic (i.e. formal) nature of V's mediatory appeal to W, which admits "No sound," but wholly comprises "a begging of the mind, to her, to appear to me" (260). As voice, it is the embodiment of speech, thought, and general communicative orientation toward any "other" which has been all V's use and wont. Thus, when the voice's organicism is stripped away in a soundless and incorporeal "begging of the mind," his being reduces to thought as the communicative medium between M and W. A negated version of the Cartesian correlate here obtains in which ceasing to think is ceasing to exist. W's appearance or its lack thus defines the subject, "For had she never once appeared, all that time, would I have, could I have, gone on begging, all that time?" (260). This internal pleading, which orients his thoughts toward an object upon whose appearance he relies, transforms M's self-generating object (W) into a subject and produces within him that objecthood (M1) which returns him onto himself. And – as Beckett makes explicit in a similar diegetic situation of another text – "thereon the roles are reversed" ("Fizzle 8" 244); for the correspondence identified above becomes a bijection – or one-to-one correspondence – that strengthens V's position as involution.

W's presence as object-cum-subject thus imparts to the function a kind of dynamic stasis that inheres within the subject as its own relation to itself. This role reversal reinforces the existence of a deictic pivot that largely evicts the subject from his own discourse and prevents his belonging essentially to himself. In his famous *Critique of Pure Reason*, Immanuel Kant describes as a fallacy the subject's ability to extrapolate its own objecthood in response to confrontation with other objects. For though "nothing is more natural and seductive than the illusion of taking the unity in the synthesis of thoughts for a perceived unity in the subject of these thoughts," Kant assures that "I" (the essential subject) "cannot cognize as an object itself that which I must presuppose in order to cognize an object at all" (*CoPR* 442). In other words, one's ability to perceive content in the outer world and then via cognition to synthesize those appearances into solid objects offers no ground for supposing that the subject performing this unification can itself be brought under a similar process of objectification. While making this objection, however, Kant concedes a difference between "the determining Self (the thinking)" and its counterpart "the determinable Self (the thinking subject)" – a difference this discussion exploits in positing V's free movement between the domains of M and M1 (442). Neither subject nor object but the liminal structure both connecting and dividing the two, V mediates that "subreption of hypostatized consciousness" which Kant deprecates (442).

In *The Phenomenology of Spirit* (*PS*), Hegel's definition of the subject as "knowing" echoes Kant's designation of the determining self as "thinking." Yet Hegel's more properly epistemological retooling of Kant's "determining Self" supports the use to which Beckett ultimately puts the character V. V represents self-division as an involution. As "M's voice," V expresses the thoughts and ideas that describe and govern M1's actions; as involution, he defines the gulf between M and M1 by a discrete application of himself as function that locates M/M1 always at one functional remove from his counterpart M1/M. Thus, as speaker and representative of the triune subject of M, M1, and V, this voice inhabits a Hegelian "I" whose indexical quality – now referring to this self, and now another – finally casts off these particularities to present himself as a proto-universal and formal structure – the pure subject (*PS*, 62). Because M speaks through V to himself M1, giving directives on what he should (not) do, the grammatical form of their relationship is already one of subject and object mediated by the verb (word, speech, thought). And since M's relation to W constitutes a kind of prototype of M1's relation to M, the following interchange, which registers an encounter between the two ideal subjects, models the self-relation of the subject. Note the oscillating change in perspective between the two:

> 43. *Dissolve to M. 5 seconds*.
> 44. *Dissolve to W. 2 seconds*.
> 45. *Dissolve to M. 2 seconds*.
> 46. *Dissolve to W. 5 seconds*.
> . . .
> 48. *Dissolve to M. 2 seconds*.
> 49. *Dissolve to W. 5 seconds* (*btc* 261).

The effect is one of a face-off, as though the two subjects were staring each other down, vying for primacy or, more radically, identification. The alternation of their images mimics precisely the repeated inversion that the involution represents and which, as has already been shown, this subject-object confrontation imparts to the internal structure of the subject for whom V speaks.

When one recalls the indexical position V has come to inhabit with respect to M and M1, Hegel's assessment of the pure subject as a "knowing" becomes relevant. He observes that "When we compare the relation in which knowing and the object first came on the scene with the relation in which they now stand in this result, we find that it is reversed. The object, which was supposed to be the essential element in sense-certainty, is now the unessential element. . . . [T]he certainty is now to be found in the opposite element, viz, in knowing" (61). The first relation to which Hegel refers is one of subject to object-as-other, as exemplified by M1's initial posture toward W: one in which he was certain she was object. V problematizes this relation when he explicitly denotes his narration a principle of inversion. He observes that in response to his directives that govern M1's motion in the space, that character "Reappeared and stood as before, only facing the other way, exhibiting the other outline" (259). This reversed orientation symbolizes a new relation that objectifies M1 and returns him to himself. Per Hegel's model, this new relation snatches primacy from both the subject and object positions and grants it instead to the mediating quality of knowing.

As quale, V becomes the problematic of the subject's relationship to itself and embodies its ultimate evacuation to the pure knowledge function. This involution places the subject always at one remove from itself-as-object; it defines a process of producing the self as phenomenon that is necessarily self-refractory. The foregoing algebraic example $f(x) = -x$ might well urge one to read Beckett's definition of M1 as "M in Set" more properly as a function V that takes M and produces M1. Thus $V(M) = M1$, where V provides that mediation which inevitably attends self-knowledge. And of course, self-knowledge perpetually cycles the self through both subject and object positions, producing also $V(M1) = M$ and thereby reproducing V as its own inverse ($V = V^{-1}$). A bijective function capable of supporting M1's rigidly periodic and inverse behaviours, V's status as involution underscores the radical reflexivity of his role. For the requirement to act both within and between the contexts inhabited by M and M1 continually exercises V's intrinsic capacity to reorient himself to his respective arguments.

As such, the involution necessarily includes a gap. Because there are always two (even three) in the relation, it fails to fully identify M, M1, and V in a way that reduces to a singular subject. Yet this result is far from problematic. For though the model provides a novel perspective on the subject, it nevertheless adheres to modern critical theories that support a divided subject and all its associated slippages. However, while the involution has focused on a rather discrete, input-output operation, M1's approach to M in the text appears also to have a processual – even continuous quality. Along with references to "cases" occurring in "proportions say of nine hundred and ninety-nine to one, or nine hundred and ninety-eight to two," V's directives "Let us now make sure we have got it right" and "Let us now run through it again" certainly suggest his preoccupation with a fine-grained alteration of M1's actions, as though each new iteration takes him ever closer to a limiting concept of the subject M (260, 261). With each advance of the subject toward the object (and vice versa), perhaps something happens to the context of these actions that bears on their identification. It now becomes necessary to consider the role of the space in directing the actions of its characters. The discussion will therefore adopt a model of convergence that side-steps even Kant's objection (to the objectification of the subject) by carefully avoiding judgements about what actually occurs at the point of its identification.

Convergence: measure revisited

This new perspective exploits the mathematical concept of convergence, which obtains whenever it can be shown that the distance between two points, functions, or objects approaches zero – regardless of their ever actually attaining that zero distance of identification. In fact, in the formal definition of convergence, the attainment of that zero distance is so irrelevant that the limit point (cf. M) – toward which any convergent sequence (cf. M1) is certainly headed and at which such an identity (as defined by a distance of zero) might in many cases be demonstrated to occur – is forever removed from the domain of consideration (Weir, Hass, and Giordano 86). In *...but the clouds...*, the convergence of M1 to M provides a stand-in for the process of identification, one that removes the difficulty of its unattainability by declaring convergence within a given threshold of tolerance enough for equating the two.

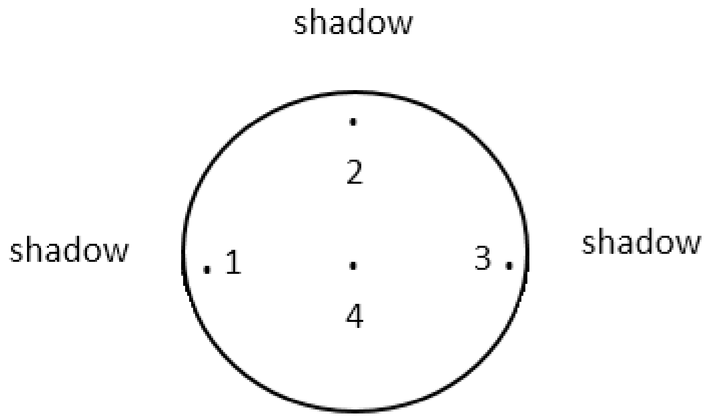

Fig. 2.
Samuel Beckett. "Set." "*...but the clouds...*", *Collected Shorter Plays: Samuel Beckett*, Grove Press, 1984, p. 258. Reproduced under fair dealing agreement.

Prior to the text's action, Beckett apprises readers of his characters' placement in space. Reproduced here as Figure 2 is his own diagram of the performance space, which he describes as "circular, about 5 m. in diameter, surrounded by deep shadow" (258). Beckett prescribes for M a "near shot from behind" and, by defining M1 as "M in Set," places him perpetually outside M1's circular ambit. With M1 centred at position 4 and M's position defined as the *complement* of M1's position in the set (i.e. M = M1 not in Set), he determines the locus of M's existence as that space of shadow beginning at the circular boundary (257). He therefore treats M like a limit. Limit points are integral to the definition of *open sets*, which in turn intimately concern the convergence of sequences. Zeno's famous paradox involving the perpetual halving of a distance constitutes such a sequence: the numbers produced by this process create a space that is *open* because of the ever-renewed possibility of halving again the distance produced at each stage of the process. The result is that it never takes its traveller to the desired destination or *limit point,* which the nature of the process places perpetually outside the traveller's domain.

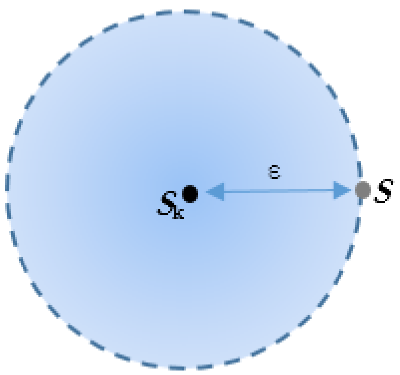

Fig. 3.
"Open Set." Author's own image.

Consider now this two-dimensional diagram (above) representing the convergence of a sequence of points to a limit *S*. The process is based on the possibility of constructing what is known as an open set about a selected point (call it S_k) in the sequence of points that lead up to that limit. (The sequence of points would lie exactly in the space occupied by the blue arrow pointing toward *S* and would appear thus: S_1, S_2, S_3, ... S_k.) The ε separating S_k from *S* designates a positive magnitude compared with which the distance between the centre (S_k) and circumference (*S*) is always smaller. The positive nature of ε places *S* just outside the reach of S_k, even as its variability enables S_k to get as close as desired to *S*. (This would be accomplished by contracting the radial distance ε and with it the circle about S_k.) Because of the similarity of Beckett's diagram to this 2D open set, each time M1 traverses the distance between the set's centre and its boundary, *...but the clouds...* becomes, to some degree, a formal definition of M1's convergence to M. As always, the pith is in the details.

Beckett's formal exclusion of M from the set supports the conjecture of a non-zero distance between M and M1, as it precludes M1's taking the final step that would close the distance between the two. The conjecture holds in the initial configuration of the set, where M1's "standing position" at 4 places him at a distance of 2.5 meters away from M's shadowy realm. Because M1 is defined as "M in Set," the relationship between the two spaces they occupy is one of complementation and non-coincidence. The conditions of M1's existence confine him to the set and makes it impossible for him to cover the full 2.5 units necessary to escape the ambit of the lighting and to reach M. Since M's location enjoys the nebulous definition of being simply outside the set and therefore coincides with the expanse of the shadow outlining the set's boundary, the maximum travelling distance afforded M1 proves always less than 2.5. The elusive moment of escape from the set would be the one in which M1 transforms into M, but as convergence formalizes M1's motion along the set's radius toward M's location, such transformation cannot be represented *in set*. Thus this distance must exclude all the limit points at the boundary, any of which M might legitimately occupy.

The term *open set*, defined by a radius that is always less than some positive number, proves appropriate to M1's domain as a space. When (in response to V's narration "I came in,") "M1 in hat and great coat emerges from west shadow," he populates the circular environment that defines the limits of his subjectivity (259). His motion in cardinal directions explicates the space's topology by varying M1's distance from M in his progress to and from his "standing position" at centre stage. His motion, then, renders the context quite literally an open set – in the language of the trade, a ball (B) of radius 2.5 centred at 4 or, formally, $B_{2.5}(4)$.

M1's non-coincidence with ($M1 \neq M$) yet convergence to M means the former always exists in some domain upon which M does not encroach. That is, the possibility always exists of circumscribing M1 within some *neighbourhood* (describable as a ball of radius even smaller than 2.5), and thus perpetually dividing him from M. This relationship prompts a further formalization of its conjectured non-zero distance by the expression $0 < |M1 – M|$, which simply posits the existence of a distance between them that must always be greater than zero. Then taking account of the set's radius of 2.5, the expression becomes $0 <|M1 – M|< 2.5$. Initialized at the pivot of this context, M1 can without ever reaching *M* legitimately cover as large a fraction of the set's radial distance as would increase his propinquity to M. This final observation registers the concept of convergence, and relies on M1's ability to place himself within any distance whatsoever of M, no matter how small. Abstraction from the text's physical representation to the space of the subject renders "any distance whatsoever" a measure of intra-subjective proximity, a variable distance one might denote ε. Thus, one constructs a formal representation of the primary self-relation of *...but the clouds...* as

$$0 < |M1 - M| < \varepsilon.$$

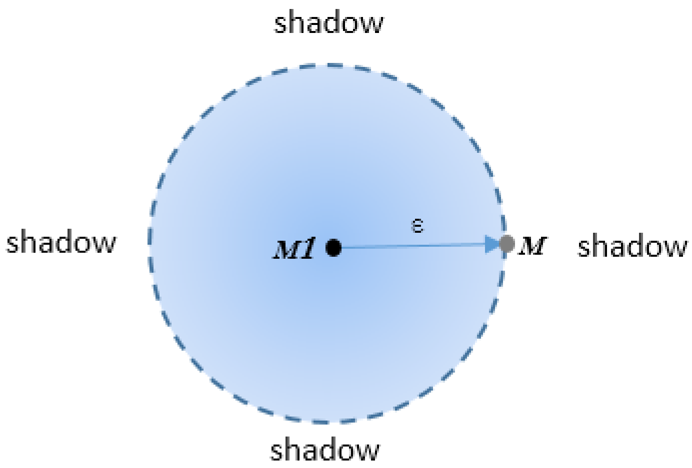

Fig. 4.
"M1 in Set." Author's own image.

Deleuze's concept of "any space whatever" has been applied to the non-descript spaces that form the setting of many of Beckett's fictional and dramatic works (Dowd 152–168). Here this idea of convergence based on a diminishing yet non-zero distance between M1 (as a current state) and M (as target state) suggests a related concept of any distance whatever. In fact, Beckett's oeuvre also repeatedly features this archetype of the peripatetic character opening and closing distances. His creation of this archetype might be considered the definition of an open neighbourhood whose variable centre can be attached to a particular character. The character's behaviour in each Beckett text conforms to a diegetic defined by this open neighbourhood, one that compels him (or her) to enact similar narratives in different contexts.

Deleuze has himself identified in Beckett's "Fizzle 8: For to End Yet Again" a description of the coverage of nondescript spaces in terms related to openness and convergence. By describing this space as "neither here nor there where all the footsteps ever fell can never fare nearer to anywhere nor from anywhere further away," Beckett centres a ball of variable but non-zero measure upon characters in motion – creating an open space in which the subjects (both represented and measured by the motion of their feet) close in upon but never quite reach their targets ("Fizzle 8" 246). Described as "nomadic distributions" in language Deleuze adapts from probability theory, these ever fell footsteps which "can never fare nearer" are strongly reminiscent of M1's convergence to M (*Logic of Sense* 102). For convergence based on any distance whatever relies on precisely this sort of perpetual diminution toward zero of a variable distance ε, where being "ever fell" describes the character's impulsion toward this zero despite his simultaneous arrest in being doomed to "never fare nearer" it than ε. Consequently, he is perpetually divided from his limit – ever kept "from anywhere further away." Moreover, not only does the character's centred motion contract the distance between current and target points, but it moves the entire distribution – the open set centred on the current character – from anywhere, to anywhere.[7]

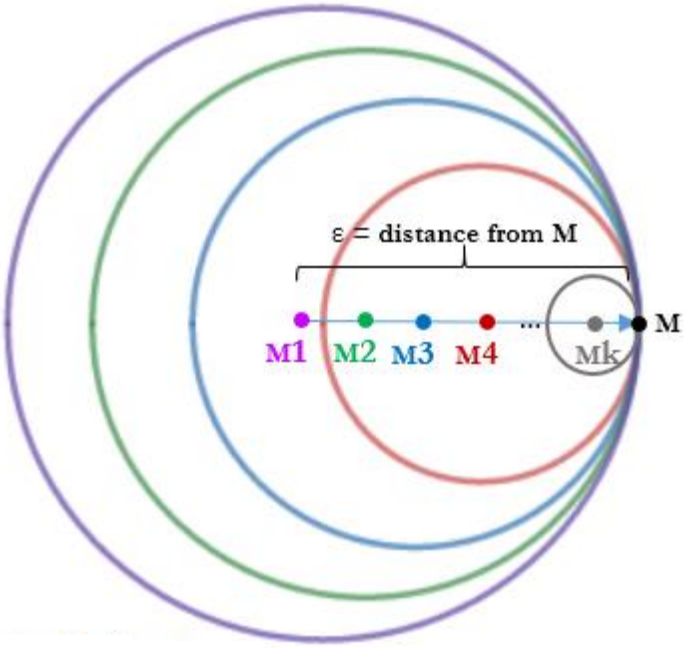

Fig. 5.
"Convergence." Author's own image.

In *...but the clouds...* Beckett performs a similar manoeuvre: he provides an open-set definition of subjecthood, which produces the distance between self and/as other as a perpetually diminishing but always open measure that supports self-convergence, if not quite self-identity. The previous section saw a treatment of M1 as an alternate version of M that resulted from the subject's division – much like an M*. But rather than the addition of a star (*) or some other symbol to M as a method of representing an alternate subject, Beckett's uses the numeral 1, a mathematical object that suggests far more than just itself. Being the first object in the space of natural (or counting) numbers, the addition of this particular symbol has a concatenating effect, so that the numeral 1 might well be working as an index via which M1 begins a sequence of alternate subjects (call them M_k's) converging to M.[8] Such a sequence might be generated by precisely the distance function given above, one that assigns to each new M_k the progressively smaller distance attained each time ε shrinks in its ill-fated attempt to reach zero.[9]

The process of mathematically formalizing a physical distance enjoys a somewhat nebulous relationship to that practice in the humanistic disciplines of symbolizing a psychological self-relation by the concept of a subject's distance from itself. In maths, the jump to ideality occurs in the application of numbers (with their potential for infinity) to an extended but finite physical space. In literary theory, idealism enters in the instant one divides the subject by supposing it bears a relationship to itself, for that moment introduces a gap – a distance – and fairly invites mathematical formalism into the theory of the subject. Beckett's imaging of psychological distance within the performance space of *...but the clouds...* recognizes this window granted mathematical formalism by appropriating such tools of the one trade as geometries and indices to elucidate (or confound) the concepts of the other. Thus that vacuous business V describes via which M1 "busied [himself] with nothing" (260, 261) reflects the process $0 < |M1 - M| < \varepsilon$, a formal representation of M1's ineradicable distance from M.

And this ever-diminishing gap also represents the subject as |M1 – M| in its inexorable advance toward – yet inability finally to grasp – the zero of its own identity.

The Closure

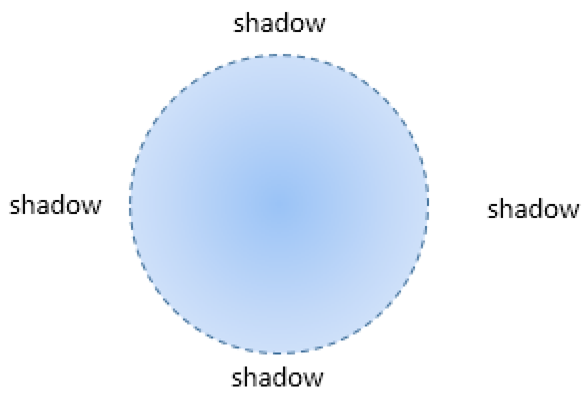

Fig. 6.
"Empty Set." Author's own image.

This mathematical logic of convergence powers a magnification symmetry[10] that creates a sequence of self-similar sets beginning at M1 (Recall Figure 5). There an ever-diminishing ε propels M1 in a pursuit of zero that brings his sequence within any distance whatsoever of its limit M. But further symmetries obtain. M's imprecise location subtly exploits the set's rotational symmetry, allowing us to extend M's locus to any point along its circular border. And this extension has the added advantage of supporting M1's convergence toward M in every possible direction, thereby allowing the inclusion of all points inside the set as potential locations for M1. However, Beckett's subsequent directive "dissolve to S, empty" suddenly places M1 so far to the edge of the set that he seems to disappear into the shadow (259). V's description of M1's imperceptibility as a matter of having "vanished within my little sanctum and crouched, where none could see me, in the dark" (259) further expresses this movement toward the shadow as an outer limit of possibilities unrealized in the set. These perspectives problematize the foregoing open-set argument, for any representation of the entire set as open requires that M1's various locations within that set all lie within some ε-neighbourhood completely contained within the set. That is, the set should never be empty because M1 must always be in it. Therefore, this discussion cannot be complete unless it address this image of a set that excludes M1.

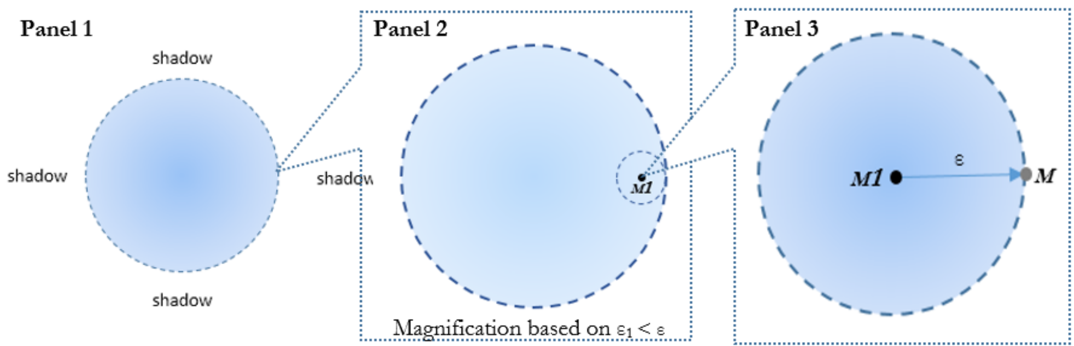

Fig. 7.
Panel 1 shows M1 hidden at the edge of the set very near the shadow. Panel 2 shows the set at higher magnification based on ε_1, holding constant – and thereby rendering visible – M1's current distance ε from M. Panel 3 shows, at higher resolution, a view of the neighbourhood containing M1 and emphasizes his enduring division from M. Author's own image.

Two situations exist under which M1 might be legitimately excluded from the audience's vision of the set. The first places M1 in set but renders him invisible because his sanctum lies – perhaps by definition – beyond the level of magnification prescribed by ε as a measure of his convergence to M. This means that the size of ε influences the resolution of the camera trained on the space, and the distance between M and M1 lies just enough below that ε-tolerance to obscure the distinction between the two characters. That is, M1 has been spuriously blended into the border, creating the illusion of his having exited the space and entered into unity with M. In actuality, however, M1 remains in set and separate from M by a distance undetectable at the chosen ε-measure – this because his convergence to M holds. (See Figure 7 above.) This interpretation thus falls under the open set discussion given earlier, and the empty-set image becomes an alternate visualization of the convergence proof.

The second viable situation introduces a more radical perspective that represents the image as a once-open set that has now achieved closure through unification with its limit points (Munkres 97). An argument from this perspective describes M's treatment as that of a limit point initially excluded from the set, but whose attainment by M1 imagines a union that marks the closure of the text. From its position at 5 in Beckett's diagram (see Figure 1), the main camera's view fails to penetrate M's shadowy residence. Instead, every view of M requires that the camera cut to a perspective provided by another, one trained not on the open set but on its complement. Thus, by describing M as "bowed over invisible table" and representing him via the "[s]ame shot throughout," Beckett relegates him to a static frame that just excludes him from the set (257). He treats him, in short, as mathematicians treat the limit point of a sequence or function.

An earlier discussion represented M1 as such a sequence approaching its limit by showing that as M1 inches ever closer to M, it is always possible to construct about him (M1) a neighbourhood that both remains inside the set and avoids touching M. A similar process involving the construction of neighbourhoods about M is required to verify his location at a limit point of M1's sequence. This complementary process would need to show that no neighbourhood of any size (no matter how small) can be constructed about M which fails to encroach upon the open set in which M1 resides. Beckett achieves this as early as the character list preceding the play, in which he renders M by a "near shot" upon a "[d]ark ground" and adds to him none of the light that demarcates the open area of the set (256). The use of a "near shot" supports M's punctual location (or being) and, by drenching him in a shadow that prevents the encroachment of his context upon the visibility that defines the open set, he is shown to inhabit (or be) a closed space. For M's place in the text becomes now defined as the not-open complement of M1's open set – itself the very definition of a closed space (Munkres 93). Further, since M might legitimately occupy any and all points on the border of the circular open set, he demarcates the limit of M1's context as the circle their distance (as radius) defines. Thus, the aggregate of *open set* and *limit points* in the context of *...but the clouds...* becomes the union of M1's discoidal domain and M's abutting border points.

This discussion has thus outlined a dual process involving the ability to place M1 within any desired distance of M and, complementarily, an inability to fashion about M an open set of any size that fails to encroach on M1's territory. Together, these two processes unite the open and closed sets into what might be termed the subject's closure. As an augmentation of the set that relies on a limiting process, the closure creates a context unified beyond the extent ever seen by the audience. That is, it may well be that M1 becomes M when he vanishes into the shadow, but if he does, the process occurs outside the domain of the diagrammed perspective: it lies, rather, in the closure attained by M1's final identification with M after an eternity spent pursuing the union. This second interpretation of the anomalous empty set thus extends naturally (though asymptotically) from the first and relies on the imagination in a way familiar across Beckett's oeuvre.

Like the involution catalysed by W's autonomy, and which houses the full subject via V's simultaneous operation on M and M1, convergence renders a complete picture only in the synergetic process involving M1's dynamic convergence toward M's static yet attractive presence. In fact, using terms notably related to convergence, Deleuze and Guattari exploit the involution's totipotence to define an "intensive reality" in which objects' differences "are distinguished solely by gradients" (164). Thus in both representations of the subject, the audience, reader, or analyst (cf. V) encounters an infinite process whose theoretic difficulty requires traversal of the gap dividing the self. Moreover, overlapping symmetries that facilitate magnification, rotation, and inversion also justify the synoptic consideration of involution and convergence, for as V's invertibility allows identification of the expressions $V(M) = M1$ and $V(M1) = M$, so does an identity between $|M1 - M| < \varepsilon$ and $|M - M1| < \varepsilon$ discover an inverse quality in the diegetic process whose completion is the closure of the subject. Where V as involution unites two perspectives by being a function of both M and M1, in the convergence setting V evaluates the limit that identifies M1 with M. So on the one hand, double application of V as involution returns an identity; and on the other, V's direction of the limiting process imagines a similar identity in the impossible expression $|M1 - M| = 0$, which sutures the gap between M1 and M by scandalously eliminating their difference. Thus the diegetic – that principle guiding the motion of the space – enfolds the characters in its action, so that topological closure effects a functional coalescence of the subject.

The text closes with V's placement of its final images within contexts of gradual diminution: a "horizon [that] fades" pictured alongside "deepening shades" (262). The first image erases the distinction between two spaces (cf. the set and its complement) while the second, by drenching its context in darkness, obscures the distinction between any objects contained within (cf. M and M1). As a text emphasizing the convergence of the subject, *...but the clouds...* thus appropriately closes its diegetic presentation with directives "Dissolve to M" and "Fade out on M" (262). And as its formal compass gradually contracts the audience's view to a five-second "Dark" that seals the performance, it not only diminishes the size of the set (spotlight) as context but also abrogates any intensive remainder that might continue to house – and thereby distinguish components of – the subject (262).

Coda

In *...but the clouds...* Beckett's method weaves into the characters' collective subjectivity a fabric of relations amenable to analysis through mathematical concepts. The set centred on the portable entity M1 measures his *convergence* toward the limit M, while *involution* enfolds the two in a mutually defining relationship that evades unity by maintaining the subject's distance at one remove from itself. The applicability of both concepts to the teleplay underscores how Beckett's image of the subject as an embodiment of its self-relation reduces it to structure, to space. Theodor Adorno assesses Beckett's strategy in *Endgame* as one that "lengthens the escape route of the subject's liquidation to the point where it constricts into a 'this-here,' whose abstractness – the loss of all qualities – extends ontological abstraction literally *ad absurdum*, to that Absurd which mere existence becomes as soon as it is consumed in naked self-identity" (Adorno 124). Yet much of the absurdity in Beckett's work comes from its gestures toward and uses of infinity – a tactic mathematicians employ very successfully to generate finite values at the end of limiting processes. The phrase *ad absurdum* might in such cases be replaced by *ad infinitum*, which precisely designates the temporal scale of the convergent process via which *...but the clouds...* deliberately confronts the Pythagorean terror evoked by the irrational or the absurd. The theatre of the absurd thus transforms into a theatre of subjectivity, a performance space that unites self and other, performer and audience, artist and work. Employing an interface and exhibiting elements of interactivity, it radicalizes the concept of audience participation via the logical performance of a self-relation. *...but the clouds...* therefore reassesses the earlier judgement of aesthetic failure applied to situations in which the work tends to absorb its creator. For by framing subjectivity as a limiting behaviour that supports convergence between subject and object, [11] its diegetic functionalizes this failure as a process of convergence applicable across spaces as well as disciplines. Absorbing self and other into space itself, it moves the theatre of subjectivity beyond the stage (through proscenium, screen, or interface) into the house, and to any-place-whatever – the sanctum, the roads, the world.

Throughout his oeuvre, Beckett's characters inscribe similar topological subjectivities governed by the mathematics of spaces they inhabit. Recognizing that the term space, construed broadly, includes the various discrete or continuous numeric and logical systems used in the computational disciplines, one might attribute universally to these characters a tendency to enact topological performances: they methodically pursue irrationality – as mathematicians do who employ rational numbers in their construction of the irrationals (*Watt*); they detour through fallacies to the excavation of truth functions (*The Unnamable*); they gesture toward a space of all possible texts by producing incoherent statements as a combinatorically generated flow of words ("Lessness"); and they embody selves that do no more (and no less) than approximate their true subject (*Not I*). These pathological behaviours have ineluctably mathematical qualities not merely because Beckett recognizes the subject as a formal entity but more specifically because in these scenarios, an extraction of the spatio-temporal logic provides a method of charting the subject.

Brett Stevens assesses that by the time Beckett writes *Quad*, he has abandoned his desire to insert errors into the treatment of mathematics in his texts, opting instead to identify and exploit pathologies intrinsic to objects of the discipline (166).[12] Stevens uses the term "self-extinguishing" of the mathematical self-relation Beckett chooses to point out in writing such texts,[13] but this property attaches directly to Beckett's subjects whenever they enact the logic of such a space. For in such scenarios, one extrapolates (from each character's own behaviours) those psychological strictures which generate contexts of which they are the very principle. The result is that the definition Heidegger gives of the mathematical – "that about things which we already know" (74) – describes also (in Beckett's works) the reciprocally gubernatorial process that is the subject's topological interpellation. In *…but the clouds…*, the evidence lies in the possibility of the subject's identification, which exists only in the convergence to zero of the involute self-relation. Yet the mechanisms of convergence, involution, or even quadrature are but instances of Beckett's more general persistence in treating the aporetic experience of the individual subject's location within – or subsumption by – a grand topological Subject.

Notes

1. Involutions occur in elementary algebra. One such is the function $f(x) = -x$. It begins by taking x as an argument and outputting $-x$. When, however, it takes that output again, the equation becomes $f(-x) = -(-x)$, which yields the original x. Since this leads to the expression $f(f(x)) = x$, a compact way of expressing this process is via its relationship to that function known as the identity, $I(x) = x$, which directly reproduces its argument with no intermediate steps. The involution is therefore something like a diffraction of the identity function, as $I(x) = f(f(x))$.

2. As an example, $A = \pi r^2$, the function describing the area of a circle, defines the measure of a two dimensional space based on a radius r, the distance of the (circular) space's borders from a point at its centre. By extending the length of r to infinity, one would generate the entire *space* of the plane (known as $\mathbb{R}^2$). In this case, one has just defined the space $\mathbb{R}^2$ based the circle definition of area, where area is a two-dimensional instance of *measure*.

3. Norwegian mathematician Luitzen Egbertus Jan Brouwer (1881–1966), who worked on topology and set theory, introduced the philosophy of intuitionism into the debate on the ontological status of mathematical objects. He insisted that "any mathematical proof of the existence of an object had to be in the form of instructions for arriving at it" (Rotman *AI* 5). Therefore, such objects would be neither existent nor inexistent prior to their construction. American logician and mathematician Charles Sanders Peirce (1839–1914) made significant contributions to the philosophies of mathematics, science, and language.

4. The text arguably responds to this question posed in William Butler Yeats's *The Tower*, for the lyrics that issue finally from the mouth of W—the character M, M1, and V spend the duration of the play trying to conjure—proceed verbatim from Yeats's text.

5. Mathematician (1894–1964) who advocated translation between the formalisms of the various mathematical subdisciplines. His 1948 text *Cybernetics: or Control and Communication in the Animal and the Machine* popularized the concept and study of cybernetics and encouraged the cross-application of scientific theories between organic and physical systems.

6. Or, in more formal terms, either a statement (P) is true or its negation (~P) is true.

7. Except, of course, to that elusive point that would close his subjectivity.

8. This conjecture is consistent with Beckett's oeuvre, in which sequences abound and single repetitions of actions suggest inductive extensions of the movements they contain. (Stevens 165).

9. Care must be taken here in representing how this distance shrinks, since ε denotes an interval and each M_k is indexed using the natural numbers. The number of *points* in an interval is uncountable and therefore cannot be indexed by the natural numbers. Therefore, saying ε shrinks progressively cannot mean the distance gets smaller by the subtraction of a point each time—it would never get smaller that way, as a point has no width and therefore possesses zero measure (distance). However, since an interval does have width and measure, a countable number of *sub-intervals* can be parsed from ε by simply designating a method by which to divide it. This is essentially what Zeno does when he suggests the infinite process of halving—one formalized by the expression $\frac{1}{2^n}$, where n represents an indexing by the natural numbers: n = 1, 2, 3,.... Such a method gives a more tractable type of infinite process, termed *denumerable*

because of its countability, and (crucially) does not involve reducing the ε-interval down to its constitutive points.

10. Any magnification makes the set appear bigger by a factor exhibiting an inverse relationship to ε.

11. Or reader and writer, actor and character, gamer and emancipated spectator.

12. The slowing of the characters' walking pace from *Quad* to *Quad II* indicates that the action gradually winds down to a speed that asymptotically approaches zero (Stevens 172). Thus the characters' motion is extinguished by its own logic.

13. Similarly, Adorno describes a "shell-like, self-enclosed existence which [...] exhausts itself in pure self-positing" (Adorno 124).

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