Chapter Six

The ‘Black Box’ of Past Experience

Agnotology does not describe the existence of systemic unknowns, but rather the production of systemic uncertainty through an undermining of the intellectual procedures used in the creation of knowledge. It employs the same epistemological procedures for creating knowledge and understanding, but with the opposite effect. This systemic uncertainty develops in the semiotic relationship between current experience and its evaluation vis-à-vis past experience—an evaluation described by Umberto Eco’s theorization of serial form in narrative fiction using “past experience”—knowledge created by established competencies and expertise produced over time.¹ It is these established methodologies that agnotology employs to create uncertainty. Eco’s analysis of popular entertainment as serial in nature uses the paired dialectic of ‘innovation’ and ‘schema,’ a construct that implicitly requires spectators to use an internal model derived from their past experience with other examples of type in forming interpretations and anticipating the development of the narrative currently encountered. It develops a conception of knowledge based in a semiotic process of recognition and

relation to past ‘successful’ interpretations. This construction offers a glimpse of the state of information, suggesting its organization and the variability of discrete samples within an imaginary network of all potential knowledge.

The rise of agnotological procedures within contemporary capitalism is symptomatic of the emergence of a distinctly serial conception of information, its validity, and the ‘knowledge’ contained within the state of information. The inability to establish the factuality of any claim made, any evidence presented, any empirical proof shown, no matter what the results of an investigation might be, shows the impact of the agnotological effects on knowledge and interpretation. The variability of this serial relationship means there is no longer a space in which we as an audience can agree upon what the epistemic value of any evidence employed in the creation of an interpretation might be: the ability to determine fact has been dissolved by precisely the process employed to produce those facts in themselves—this dissolution of knowledge-generative methodologies reveals the agnotological process in action, and offers a glimpse of the aura of information’s aspirations to completeness.

The emergence of the state of information from our internal models that constrain and define the serial requires an acknowledgment of the “black box” in Eco’s argument—there is no discussion of how the serial model produced by past experience might arise or how it could work to produce this “past experience” essential to successful interpretation; however, mathematician John Holland’s complex adaptive systems (CAS)\(^2\) does offer one model for how serials create these expectations, and provides a logical foundation for describing an imaginary “state of information” that follows from this serial organization of past experience in knowledge. The ways CAS is consistent with Eco’s theory of serials has suggestive implications for the relationship between past experience and interpretation in more general terms: a CAS

model which accommodates Eco’s serial “black box” provides a justification for the variability of interpretation, creating the epistemological foundation necessary to describe the state of information.

The aesthetic model Eco proposes is connected to the way spectators encounter and interpret serial forms. It is a consequence of whether innovation or schema is given priority. Past experiences with the topos of a particular serial define the aesthetic experience the audience has by recognizing specific variations within a predetermined framework. The way serials use viewer expectations is the main source of the pleasure we get from them.³

The role of past experience with examples of type in Eco’s theory requires a basic explanation of his concept of serial form. In doing so, the “black box” will become readily apparent. The serial aesthetic is a consequence of the serial structures themselves. To be serial means, first and foremost, that the audience for the serial recognizes and acknowledges the ways the audience’s knowledge is required to interpret a specific episode in a serial. It is a reciprocal connection between immanence and remembrance.

Eco identifies three serial structures and two temporal relationships used by those forms: the retake, the remake, and the series; the saga and spiral are his temporal structures.⁴ The retake is a continuation of an earlier story (Eco suggests Star Wars as a good example; The Matrix films also qualify); the remake is a new version of an already existing story (the many filmed variations on Dracula, or Shakespeare’s plays, for example); the series is a continuing story that either develops across time (as with Dallas), or it can also repeat episode to episode (All in the Family or Peanuts are good examples of this variety).⁵ Each variation is defined by its relationship to previous models and by how it reworks those schemas to produce a novel example.

---
³ Eco, “Interpreting Serials,” 95.
The spectator’s interpretations employ frameworks created through previous encounters with similar types in order to anticipate and recognize divergences from established norms. These interpretations are common to all serial forms, not only those employed by the popular media. The difference between art and popular forms is a matter of references and audience, not of form. The relationship between schema and novelty is the focus of a specific kind of spectatorship that defines “seriality” for Eco.

The saga and the spiral use past experience in a different way and present a different conception of fictional time. Each episode of a serial does not necessarily advance temporally. The body of knowledge an audience has about how serials organize their portrayal of time delimits the ways viewers will understand outcome and consequence. Sagas proceed in linear time. They are chronological explorations of characters’ actions and history, sometimes reaching epic proportions (as both Dallas and Wagner’s Ring cycle attest). Spirals do not proceed in linear time; instead, they present variations on a “loop” in which no time elapses, but our understanding of the characters deepens through a continuous variation of set performances. This temporal difference defines sagas and spirals.

A “loop” is the serial form that most requires past experience in order to create complex meanings since, while it is potentially infinite in its variability, each episode is self-contained, making it shallow in its depiction of consequences and history. Our understanding and interpretation of the serial grows through the pattern of repetition and variation in toto. The aesthetic pleasure loops provide is rooted in the variants of form they present:

In the most typical and apparently “degenerated” cases of seriality, the independent variables are not all together the more visible, but the more microscopic, as in a homeo-

---

pathic solution where the potion is all the more potent because by further “successions” the original particles of the medicinal product have almost disappeared. … We are thus facing a “neo-Baroque aesthetics” that is instantiated not by the “cultivated” products, but even, and above all, by those that are the most degenerated.⁸

Interpreting serial forms requires the audience to recognize that each episode quotes from earlier versions of itself. In Peanuts, Charlie Brown has never gotten to kick the football held by Lucy, but the scene of his attempt has been repeated many times. The meaning of Lucy’s snatching the ball away at the last moment derives from the audience’s recognition of how each sequence is a quotation of all the other sequences generally. This particular scene is a serial structure within the serial that is Peanuts itself. Quotation of this type is not specifically recognizable as quotational, since it is fundamental to the serial form itself: seriality is a special kind of intertextuality.

However, Eco notes:

What is more interesting is when the quotation is explicit and recognizable, as happens in postmodern literature and art, which blatantly and ironically play on the intertextuality...aware of the quotation, the spectator is brought to elaborate ironically on the nature of such a device and to acknowledge the fact that one has been invited to play upon one’s encyclopedic knowledge.⁹

Explicit quotation makes the serial visible as a synthesis of earlier works, drawing attention to the specific quotation and to the ways a serial reflexively quotes itself: the schema is a particular kind of quotation. Audiences draw upon “past experience” to recognize serials in the same way that intertextual quotations do. Each new serial is unique and refer-

enced against previous encounters, orchestrating intertextuality so the expectations spectators have for one episode allow earlier episodes to inflect their immanent interpretations. The audience’s familiarity with the cultural context and history for a specific serial mirrors other intertextual devices. Thus serials are always intertextual, and intertextuality is a function of our ability to recognize variation and repetition.

But how these expectations arise, how they evolve, and how they change remains unaddressed, yet omnipresent in Eco’s theory of serial form. Each new episode either meets or violates the audience’s established expectations, sometimes even at different points in the same episode. Both potentials are valid possibilities within Eco’s theory because it is the expectations themselves that are the focus of his aesthetic:

Let us now try to review the phenomena listed above from the point of view of a “modern” conception of aesthetic value, according to which every work aesthetically “well done” is endowed with two characteristics:

It must achieve a dialectic between order and novelty, in other words, between scheme and innovation.

This dialectic must be perceived by the consumer who must grasp not only the contents of the message but also the way in which the message transmits the contents.¹⁰

Validity derives from the audience being able to recognize both the innovations (differences from expectations) and the schema (the ways that expectations are met). Our role as spectator is crucial. The aesthetic emerges from the audience being able to recognize and appreciate the variations across the serial as a whole. It is the perception of the nuances those variations reveal that is aesthetic. It requires a self-consciously interpreting, anticipating audience. We must use our expertise—past experiences with the schema—to inter-

pret episodes in a serial, acknowledging the ways our experience determines both immediate beliefs about the episode, and our understanding of the relationship between that episode and the schema from which it is derived.

A dialectic between order and novelty requires an internal model for the serial (the schema itself is such a model)—otherwise we cannot recognize any of the characteristics Eco values: variation, repetition, or novelty. By definition, novelty requires a breach of past expectation, while variation and repetition create continuity with it. Eco neither provides an account of how such models arise nor does he provide an explanation for how they change. This absence constitutes a “black box” in his theory of serials. It is crucial to the aesthetic model he proposes.

§6.1

The complex adaptive systems (CAS) John Holland presents in *Hidden Order* as mathematical models of physical phenomena are expectation-generating structures that describe the emergence of order from the individual, disconnected actions of groups of organisms.\(^{11}\) He is not discussing the kind of interpretive process crucial to Eco’s seriality; nevertheless, these two theories have much in common. His model’s ability to anticipate outcomes and maintain “ideas” about the world makes CAS a good candidate for Eco’s “black box.” In describing the spontaneous appearance of order and structure, CAS provide an account of how internal models could work, and the points of contact between CAS and serials suggest seriality may be basic to how we interpret. It also suggests that CAS, understood through the concept of seriality, could provide a general basis for interpretation. Both CAS and seriality are incomplete in themselves as general theories of interpretation.

Holland’s complex adaptive systems use the concept of rules to explain how a model is constructed. The creation of

\(^{11}\) Holland, *Hidden Order*, 11.
rules provides a mechanism for both storing previous experience and using that experience to guide future expectations. Holland describes how these rules could act:

The usual view is that the rules amount to a set of facts about the agent’s [interpreter’s] environment. Accordingly, all rules must be kept consistent with one another. If a change is made or a new rule is introduced, it must be checked for consistency with all the other rules.\textsuperscript{12}

Conceiving the rules in this way produces a rigid framework that does not fluidly change. While viewing the constraints imposed by serial forms in this fashion does have some appeal, it does not “fit” with the description Eco proposes—that variations and exceptions to our expectations are what provide the specific interest generated by a serials’ reuse of an already existing schema. Holland disagrees with the “usual view” of rules, and instead suggests a description for how rules could function that is closer to seriality:

There is another way to consider the rules. They can be viewed as hypotheses that are undergoing testing and confirmation. On this view, the object is to provide contradictions rather than avoid them. That is, the rules amount to alternative, competing hypotheses. When one hypothesis fails, competing rules are waiting in the wings to be tried.\textsuperscript{13}

This second description for how rules could work satisfies the sense of immediate accommodation that Eco’s description of serial pleasures implies. If we exchange “rules” with “expectations” in the above quote, the problematic “black box” in Eco’s theory is replaced with a mechanism for identifying and understanding repetition and variation. Holland’s theory does not describe CAS in serial terms, but it is possi-

\textsuperscript{12} Holland, \textit{Hidden Order}, 53.
\textsuperscript{13} Holland, \textit{Hidden Order}, 53.
ble to adapt it to be a general model for interpretation. This adaptation requires the CAS model adopt a serial character itself.

Variation in his serial aesthetic shifts emphasis from originality to variability within the schema. This change of focus signifies a new understanding of serials for Eco:

The real problem is that what is of interest is not so much the single variations as “variability” as a formal principle, the fact that one can make variations to infinity. Variability to infinity has all the characteristics of repetition, and very little of innovation. But is the “infinity” of the process that gives a new sense to the device of variation.\textsuperscript{14}

Appreciating these variants is a consequence of being able to create an internal model where the variations appear as different potentials within that construct. The model describes this situation precisely and, at the same time, explains how viewers can perceive the model within the network of variations.

Established knowledge—in the form of rules that have already been tested—provides a base for extending these models. CAS “scales” like a fractal—each rule combines to make more complex rules and is itself composed of simpler rules. Its structure remains constant at all levels of complexity and combination because the basis of the structure lies in how the CAS model remembers success and failure and adapts to new situations:

This credit-assignment procedure, which I call a 	extit{bucket brigade algorithm}, strengthens rules that belong to chains of action terminating in rewards. This process amounts to a progressive confirmation of hypotheses concerned with stage setting and subgoals.\textsuperscript{15}

\textsuperscript{14} Eco, “Interpreting Serials,” 96.
\textsuperscript{15} Holland, \textit{Hidden Order}, 53–56.
Holland’s “rewards” come in the form of a rule accurately anticipating the outcome: the spectator’s expectation is met. This mechanism allows an audience member to recognize a serial, and appreciate the ways that episode both meets and differs from the audience’s expectations. What we commonly call “experience” and “expertise” are forms of learned behavior in CAS. What this model makes explicit is the connection between past successes and future successes at all levels of interpretation: Holland’s “bucket brigade” demonstrates how abilities and actions can be described as learned skills. It also explains how a schema can arise from the network of distinct, yet similar forms that are episodes in serials. Both variation and repetition act to make the schema appear stronger since both kinds of experience work with established knowledge and understanding.

Repetition strengthens specific rules and weakens others in CAS. Those rules that grow stronger do so because they are proven correct more often than other rules; however, these rules are not unchangeable. They depend upon the viewer recognizing them. The aesthetic aspects of repetition requires the schema since it is the continuance of forms that is aesthetic.

Variation proceeds through a process of substitution and alteration. It is always serial, but the aesthetic model specific to it lies (as with repetition) in the continuance of the schema and its perceptibility in spite of the changes imposed through the process of variation. It is a matter of nuanced changes within an immobile topos. For CAS, these variations prompt specific attention because of the relationship they have to established form—variations serve to strengthen the schema by making it that much more visible as the constants within the variables.

Consider how expectations in Raiders of the Lost Ark guide our viewing of Indiana Jones’ encounter with the Arab giant. His fight elicits laughter because it breaks the expected convention—followed in that film up to that moment: “the spectator, in order to enjoy the allusion, must know the original topoi. In the case of the giant, it is a situation typical of
the genre."16 It comes at the end of a long sequence of fights with smaller Arabs in a bazaar, each of whom Jones defeats with either fist or bull whip, so when he is confronted by the giant and simply shoots him, the act confounds our expectations. The use of the gun “breaks” the rule established by the earlier fight sequence and, as Eco noted, defies the genre itself. “These imperceptible quotation marks, more than an aesthetic device, are a social artifice; they select the happy few (and the mass media usually hope to produce millions of the happy few).”17 Recognizing the interplay of quotations is a function of familiarity with the schemas that produce serials; this familiarity is not a formal principle of the work but constitutes extratextual knowledge that lies outside the serial itself. This example suggests that the situation is modeled in different ways, depending upon whether the viewer chooses to interpret based upon the context of the film or the context of the genre.

A later fight with another giant (a NAZI) follows genre up to a point then breaks it in a less humorous way. The second encounter is more dramatic precisely because, as spectator, it is impossible to determine in advance how the sequence will play out. Our past experiences with the serial form Raiders employs is applicable, but only to the point where our ability to anticipate is curtailed. The variability takes precedence over the schema in this example. The opposite is true of Charlie Brown and the football: the minute variations are the focus, with the outcome remaining constant. The ways our models and the serial episodes interact is the source of Eco’s “neo-Baroque” or serial aesthetic. The CAS model provides a way to explain how this aesthetic arises and how we recognize serial forms.

The ability of different audience members to see the same thing, yet interpret it in radically different ways, demonstrates how our interpretations of serials grow deeper and more complex through repeated encounters with new exam-

17 Eco, “Interpreting Serials,” 94.
The variation that defines the serial form is reflected in our interpretations of that form.

§6.2

There is a high degree of similarity between Holland’s CAS and Eco’s serials. Complex adaptive systems create models that “remember” and “learn” by using previously successful rules as building blocks for future rules, creating the “depth” necessary for Eco’s serial aesthetic. Both Eco’s aesthetic and CAS become more complex as a result of greater familiarity. The CAS model, by “scaling” from simple to complex, is very flexible in adapting to new situations. The model dynamically restructures itself to incorporate changes, just as serials contain all their variations and remain constant:

Evolution “remembers” combinations of building blocks [combinations of rules] that increase fitness. The building blocks that recur generation after generation are those that have survived in the contexts in which they have been tested.

The support for these rules is circular, making novelty the force that causes the model to grow in complexity. Only novel situations test new rules and refine the model further: rules are constrained by the feedback loop producing them. As a general interpretive framework, then, the CAS model presents meaning in serial fashion as a range of immanent probabilities.

Circularity reinforces the tendency towards a consistent interpretation. Charlie Brown and Lucy do not tell us anything new about the schema when Lucy pulls the football away, and yet each time she does, our understanding of their

19 Holland, Hidden Order, 61–76.
20 Holland, Hidden Order, 79.
relationship grows slightly more complex. This depth of understanding is the “rules” being refined further. Our appreciation of the scene—and its comedy—comes from our understanding of these variations. This corresponds to Eco’s dialectic of innovation and schema where innovation is the novel situation, and schema is the established model.\textsuperscript{21}

\textbf{§6.3}

The complex adaptive systems model may provide a general explanation of how interpretation proceeds. Its specific strengths when confronting the variability of serials is suggestive when we consider the variety of mutually exclusive theories and interpretations that characterize broader fields of thought.\textsuperscript{22} Our ability to accept and evaluate, even employ, multiple, different (even contradictory) interpretations at once has much in common with the problematics connected to interpreting serials.

Being able to describe a process where expectations can arise, shape interpretation, and then evolve places serials in a broader interpretative context. The CAS model may provide a framework for justifying interpretation generally through recourse to a set of potential interpretations—Holland’s “rules”—that may apply to any given situation, whether it is a serial or otherwise. Conceptualizing interpretation as a serial form shifts the emphasis in supporting specific interpretations from an external foundation to an internal one where specific interpretations are justified by the existence of alternatives. The momentary superiority of one rule does not invalidate the others. Like serial forms, meaning depends not on specific individual interpretations but on the relationship between specific interpretations and the system that creates them. This shifting of relationships appreciated in itself is Eco’s serial aesthetic.

The concept of a probability set whose composition is se-

\textsuperscript{21} Eco, “Interpreting Serials,” 97–98.

\textsuperscript{22} Eco, “Interpreting Serials,” 95.
rial—a collection of various, competing interpretations—opens possibilities for justifying interpretation in a flexible and open ended fashion. A serial CAS could explain and justify these competing interpretations without necessarily forcing us to choose between them in the way that Holland’s CAS does where past experience creates a framework that produces the single most probable interpretation. In contrast, the serials Eco describe present a set of alternatives defined by their relationship through variation. When applied to interpretation generally, a serial conception of the CAS model suggests we consider meaning as a range of potentials rather than as a singular choice. Even though the model proposed here is incomplete and tentative, it is suggestive of possible strategies for justifying interpretations without precluding their rejection or revision at a later time. Individual interpretations are justified not by comparison to an external truth but by the existence of other possible interpretations with shared characteristics that nevertheless contradict each other.

As the state of information develops and becomes dominant, what we observe as a symptom of its activity is the breakdown of the procedures that create knowledge and establish the reliability of information apparent in the rise of agnotology specifically, and digital capitalism generally. These validity-producing procedures themselves are what is attacked by the agnotological process. The same epistemological techniques for creating certainty are the foundational techniques for agnotological generation. What enables their use within agnotology is the serial relationships posed by the state of information; however, their action is authorized as potentially valid not through a recourse to epistemological reasoning, but via the aura of information that accompanies the ascent of the digital. In aspiring to the state of information, the aura of the digital authorizes the acceptance of agnotological results specifically because the contra-results characteristic of agnotism are always already valid within the information space described by the state of the information. Thus, no matter what the result of any investigation subject to agnotism might be, it is the investigation itself that is in
question: those who already doubt the validity of available studies enmesh themselves more deeply into the agnotological structure by demanding newer, alternative studies, yet in calling for more study they have already begun with the assumption that whatever result they currently have available to them is of no value—the most obvious symptom that their thinking is caught in the trap of agnotism.

The problem posed by a dominant regime of agnotology is that it authorizes doubt about any result—literally any piece of information—that does not match a preconceived frame of reference. It makes challenges to established patterns of thought difficult if not impossible: the affect of agnotology, perversely, is a reinforcement of certainty since it undermines alternatives that could challenge those ideas; thus, it leads to an unwillingness to compromise, and an inflexibility of thought—both essential features of how digital capitalism is an ideological construction capable of governing what would otherwise appear as incompatible, mutually exclusive groups.