Simulating Hamlet: a critique

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Abstract

This paper explores the implications of the use of System Dynamics models in drama. It examines the model used in Pamela Lee Hopkins' "Simulating Hamlet in the classroom". The paper addresses this issue from a literary, rather than a modelling, perspective. It begins by discussing two general issues in the use of SD modelling in literature. Two aspects of the model, motivation and evidence revelation, are then examined against evidence from the text, supported by some historical information. Some of the difficulties inherent in modelling drama are highlighted and the paper concludes that the model does not adequately capture the complexity of the play because SD modelling is not an effective tool for literary analysis.

Introduction

The purpose of this paper is to examine the issue of the use of SD modelling in literature. The discussion compares the text with a model of *Hamlet* (Hopkins, 1992). It uses a reconstruction of the simulation model of *Hamlet* as the basis for the discussion of a range of issues that need to be addressed if the use of modelling is to gain acceptance amongst teachers of literature. If System Dynamics is to be applied across the curriculum, then the SD community will need to argue a case that is inter-disciplinary. This case will not be based solely on the merits of SD but on its applied benefits in other fields where it will need to be seen, not simply as equal to current methods, but markedly superior. This paper uses what appears to be one of the few examples of published simulation modelling SD of a work of literature to argue that the approach does not make a significant contribution to the understanding an in some instances may limit rather than increase the understanding of the play.

It is necessary to set some "Limits to Application" in the application of SD modelling in relation to works of art. It is appropriate and natural that the use and application of SD modelling in the school curriculum will inevitably lead to its being applied in areas where it has not previously been used. These applications need rigorous intellectual examination from the standpoint of the discipline of SD and from the area of the new application. Its use in literature raises the question of whether definition of some "Limits to Application" might be timely. This paper on *Hamlet* provides is designed to provide an opportunity to discuss whether this specific application may provide some caveats to the more general use of SD in literature.

In a specific discussion of the *Hamlet* model, the paper seeks to raise questions that arise from the domain of literature, and by implication the teaching and criticism of literature. If modelling is to have validity for teaching *Hamlet* in the high school classroom, then the methodology should be established in terms that have validity for its application to other works. If there are difficulties dealing with questions central to an appreciation and understanding of *Hamlet,* then it must be seriously considered whether such difficulties might not carry over to other works.

In suggesting that, in the case of *Hamlet*, a SD model does not make a significant contribution to an understanding of the play, the paper is designed as a cautionary note in terms of setting boundaries for modelling activities. It needs to be considered that advance of SD modelling in schools may be hindered by its application in an area where its use is not productive. The position taken in this paper is that the best understanding of *Hamlet* can be gained from reading the text and the application of some contextual historical information. The paper

does not suggest that the work that was reported in the Hamlet article did not gain an enthusiastic response from the pupils in the classroom. It is clear from the original paper that the modelling exercise made Hamlet accessible to a group of pupils who would certainly be a challenge to any teacher. However, the enthusiastic response of the pupils is not the overriding consideration here. The major concern is whether the structure of the model, whether developed by pupils or teacher, ultimately limits and curtails the potential for understanding this play.

Later this paper will argue a specific case in relation to *Hamlet*, but in the first instance, it is helpful to discuss some of the general aspects of literature that may prove problematic to modelling. One such general issue is the issue of the treatment of time, and another is the related issue of character development, in literature.

The nature of time and character

Fundamental to SD modelling is the idea that time is continuous. This is not always the case in drama or literature in general. Sometimes time jumps forward, in the case of *Hamlet* there is a jump of several months between the first ghost scene and the play scene. In some works, there flashbacks, where time, or at least the narrative, moves backwards. Sometimes, a work will start at the end and the plot will go forward from there. For example, at the beginning of Salinger's *The Catcher in the Rye*, Holden Caulfield is already in the psychiatric unit where he is when the book ends. Time here is circular rather continuous. When Pip meets Estella at the end of *Great Expectations*, he finds a woman greatly changed by experiences outside the narrative of the book. The effect of this uneven treatment of time in literature is that the readers' or audience's perspective is continuous but the action within work may not be.

 Closely linked to the idea of continuous time is the idea of accumulation, inflows and outflows, which is central to SD. However, it is not central to literature. The stupidity of Mrs. Bennett in Austin's *Pride and Prejudice* does not accumulate, it is established on the first page of the novel. Austin effectively establishes this character in one paragraph. It is not necessary to think of Mrs. Bennett's stupidity as an accumulation with inflows and outflows; this character does not change throughout the book. What the reader sees is a manifestation of this element of Mrs. Bennett's character throughout the book. Clearly, not all characters are as static as Mrs. Bennett and develop through a novel.

In *Great Expectations*, Pip changes morally, emotionally and spiritually. It is possible to define this in terms of the flows between two stocks, immaturity to maturity for each of the three variables. However, this representation presupposes firstly, that this is a useful definition of Pip's development and

secondly that this definition is more useful than a consideration of the complex interaction of each of these variables. Pip's journey takes the whole course of the novel and derives from the complex interaction between Pip, Estella, Miss Haversham, Magwitch, Jaggers, Compeyson and all the other characters in the book. The use stocks and flows would run the danger of simplifying Pip's character to a point where it loses the richness that makes *Great Expectations* a great work of literature.

Stock/flow/rate language is a metaphoric representation of some aspect of reality. By way of an example, it is possible to model Macbeth's growing power and increasing disillusion as accumulations. A simple model which links the MacBeth's bloody path to power and the despair he feels could be:
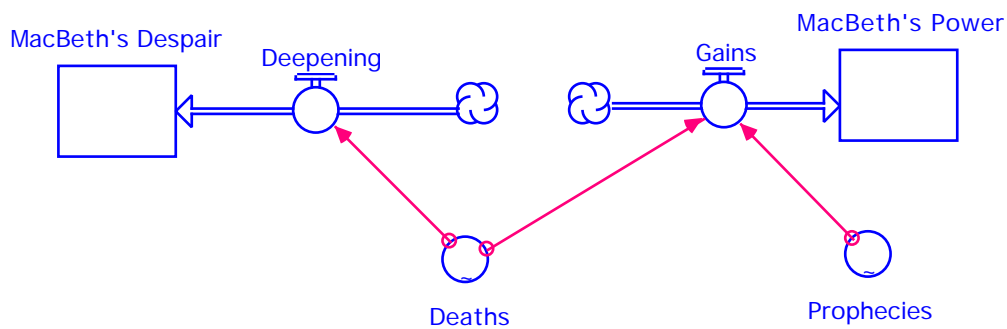

Figure 1: Macbeth model

The behaviour shows the connection between his ascent to power and his despair.
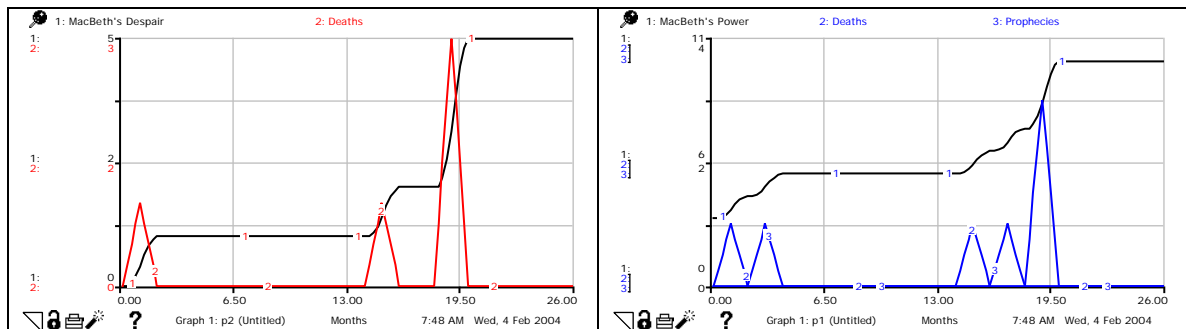

Figure 2: Links between power, murder and despair

However, this point can be made in one sentence: "As MacBeth murders his way to the crown, he is plunged into ever deepening despair by the horror of his actions".

One argument for the use of SD in literature is that students can change the

model and explore other scenarios. What if MacBeth's gets so much joy from his ascent to power that it alleviates his despair? This is the model structure that reflects this.
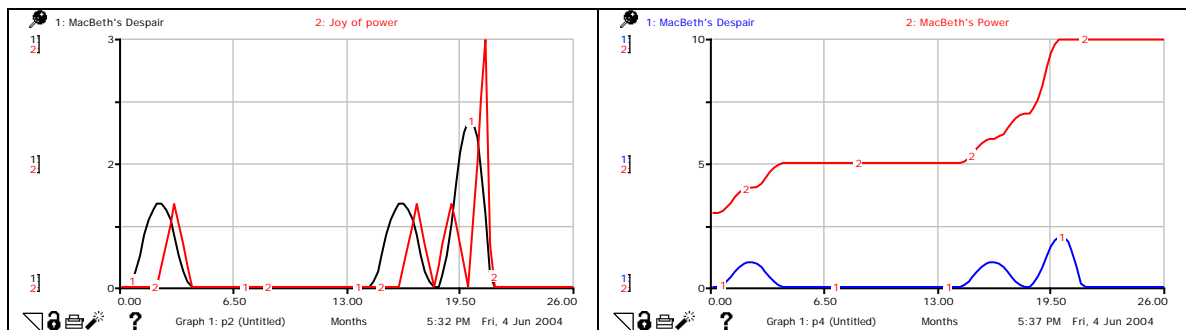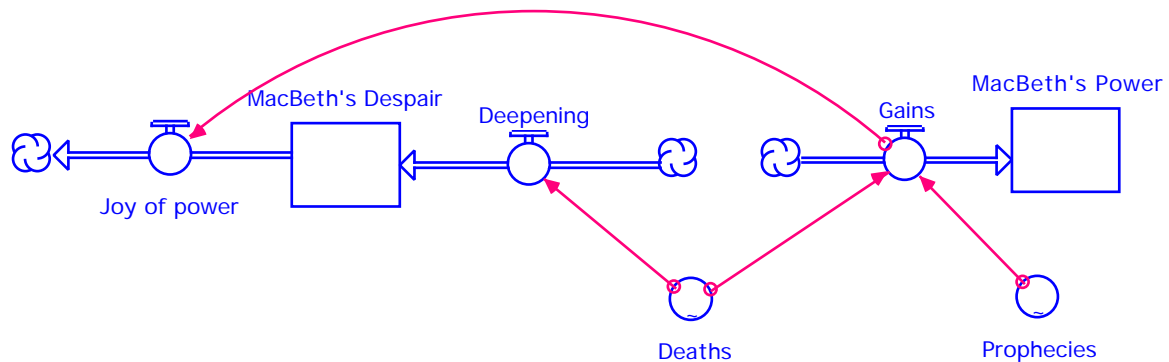
Now, the model shows us how Macbeth's love of power outweighs his despair. There is no fall of the tragic hero, no tragedy, no *Macbeth*. Furthermore, this is clearly not the case in the play where Shakespeare uses the metaphors of Macbeth wading through a river of blood

> *Macbeth*:   I am in blood
> Stepped in so far that, should I wade no more
> Returning were as tedious as go o'er.
>   **III v 135 - 137**

And the more complex set of images which combines images of the slow passage of time, life a brief light and the nature of drama.

> *Macbeth:* Tomorrow, and tomorrow, and tomorrow,
> Creeps in this petty pace from day to day,
> To the last syllable of recorded time;
> And all our yesterdays have lighted fools,
> The way to dusty death. Out, out, brief candle!
> Life's but a walking shadow, a poor player

That struts and frets his hour upon the stage
And then is heard no more. It is a tale
Told by an idiot, full of sound and fury,
Signifying nothing.

<div align="center">V v 19 - 28</div>

If we substitute graphs and models for language, we run the risk of losing our sense of awe and wonder at Macbeth's tragedy. This sense is deeply rooted in the language of the play that is ultimately our best access to MacBeth's suffering.

The rationale for modelling

Steve Peterson, who worked with Pamela Hopkins on the original model, provided the case for modelling Hamlet in a personal communication early this year.

- System dynamics models can be helpful in "hooking" students on the literature, but they're not going to replace the literature itself.

- Because of the focus on dynamics, a model can be helpful in enabling students both to think through the sequence in the plot and to think through the buildup and release of tension that occurs in many literary works.

- It's possible to use system dynamics as a vehicle for representing the relationships between the various characters in a piece of literature, and then to trace out the dynamics that are implied by those characters. This process is a great way to force out good questions/discussions about why an author cast characters in this or that particular way. Similarly it's a great vehicle for getting people on the same page about what events and patterns are essential to the story line.

- Finally, it's a great way to test understanding--if my model of the interrelationships between characters can generate a behavior that's pretty close to what happened in the literature itself, then I've got at least an entertainable hypothesis!

Members of the SD community will recognize each of these as standard outcomes of a modelling exercise applied to literature. However, there is another perspective, which we need to recognize and it comes from a literary, rather than modelling perspective.

Discussion

- Hooking the students

Proposition 1: There is no doubt that a novel approach, enthusiastically taught will hook students. However, this does not argue a special case for modelling. It argues for good teaching, for "The Dead Poets' Society".

Technological solutions to problems of literary criticism will have a seductive appeal. Everyone who has used SD models in a classroom will be familiar with the enthusiastic responses of the students. What is at issue is whether the students are being hooked by the modelling technology or by the play. The real danger is that the model gets between the literature and the reader by simplifying dynamics that are best understood from the text.

In the model, the stock of Claudius empties (i.e. Claudius dies) in Act V Sc ii when Hamlet's motivation and opportunity get to the desired levels (Opportunity .95 and Motivation 95.) But it also presupposes that this is an adequate explanation of what happens in the final scene. It ignores the fact that the dying Hamlet now realizes that, in addition to murdering his father, Claudius has now poisoned him, his mother and Laertes. This certainly "motivates" Hamlet but it ignores the structural and dramatic pressures that have been developing to this point.

- Thinking through the sequence in the plot and the buildup and release of tension

Proposition 2: Sequence is not central to understanding drama.

Sequence and plot are complex issues in *Hamlet* as it is in most works of literature and analysis in these terms misses a fundamental element of the play. Let us start with the hypothesis that writers do not use sequence in a linear sense but rather interweave sequence, selecting what is dramatically, rather than sequentially, important.

After the sequence of betrayals by the men she loves, Ophelia commits suicide. The timing of Ophelia's suicide is unimportant; it is the dramatic impact on both Hamlet and Laertes that is important. In other words, its not when it happens, it's *that* it happens.

The sequence of events that leads to Hamlet hearing the ghosts account of his death is less important than the dramatic impact this has on Hamlet.

Plot and sequence are two elements contributing to the unfolding drama; plot, sequence and drama are related but not similar. Laertes returns to Paris after

Claudius' marriage, he hears of Ophelia's death, returns, is gulled by Claudius and tries to kill Hamlet. This is a sub-plot and a sequence. Its dramatic importance is that it ties Hamlet, Laertes and Claudius together in a way that precipitates the tragic final scene.

- Representing the relationships between the various characters

Proposition 3: There is *no single* representation. It is recreated each time the play is read or performed.

The relationships between the characters in Hamlet are represented in language, and are recreated each time the play is staged, which is, ultimately why the play survives. At best, a SD model will *simplify* the relationships, whereas the staging of the play brings out the complexity.

Claudius can be played as a drunken lecherous oaf or as a Machiavellian schemer who has politically outmaneuvered Hamlet, supplanted him on the throne and who will ruthlessly exercise his power to maintain his position. Both are consistent readings of the text.

Subtle nuances in the portrayal of the relationship between Hamlet and his mother, emphasizing the Oedipal nature of relationship can add another dimension to Hamlet's motivation for killing Claudius.

- Representing what events and patterns are essential to the story line.

Proposition 4: There are no non-essential elements. While it is true that producers cut the play significantly, there is always a cost to dramatic structure. Even if you leave out Polonius' scene with Reynaldo, probably the least relevant in the play, you diminish Hamlet's epitaph

> *Hamlet:* Thou wretched, rash intruding fool, farewell
> III iv 33

However, it is important to note than many directors cut *Hamlet* significantly in production. Kenneth Branagh's recent production comes in a full text 4-hour version and in a shorter 2-hour one. The task of the director is to produce a coherent and satisfying version of the play.

- generate a behavior that's pretty close to what happened in the literature

Proposition 5:

While initially seductive because the characters' behaviour changes over time, reference mode graphs suggest that some relative scale can be placed on these changes. There are two pieces of evidence that spur Hamlet to avenge his father's murder: that of his meeting with the ghost and that of the play scene. It is not necessary to quantify them and show which is more important. Hamlet needs both for reasons that are discussed later in the paper.
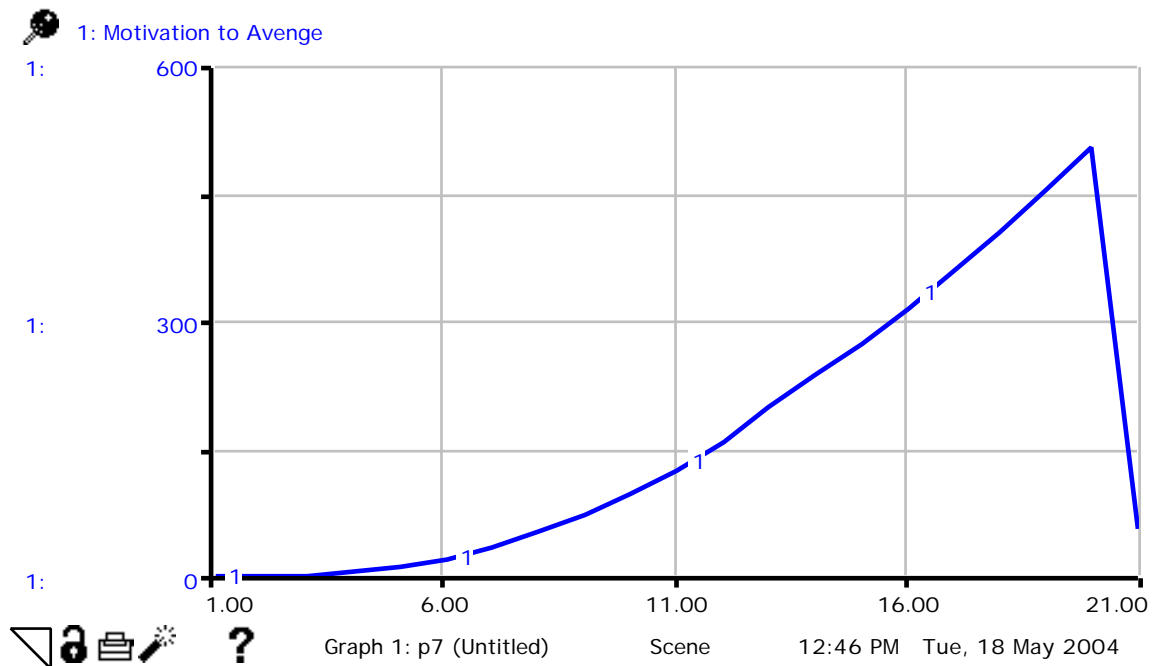
Hamlet and Modelling

The model used for this analysis is taken from the paper
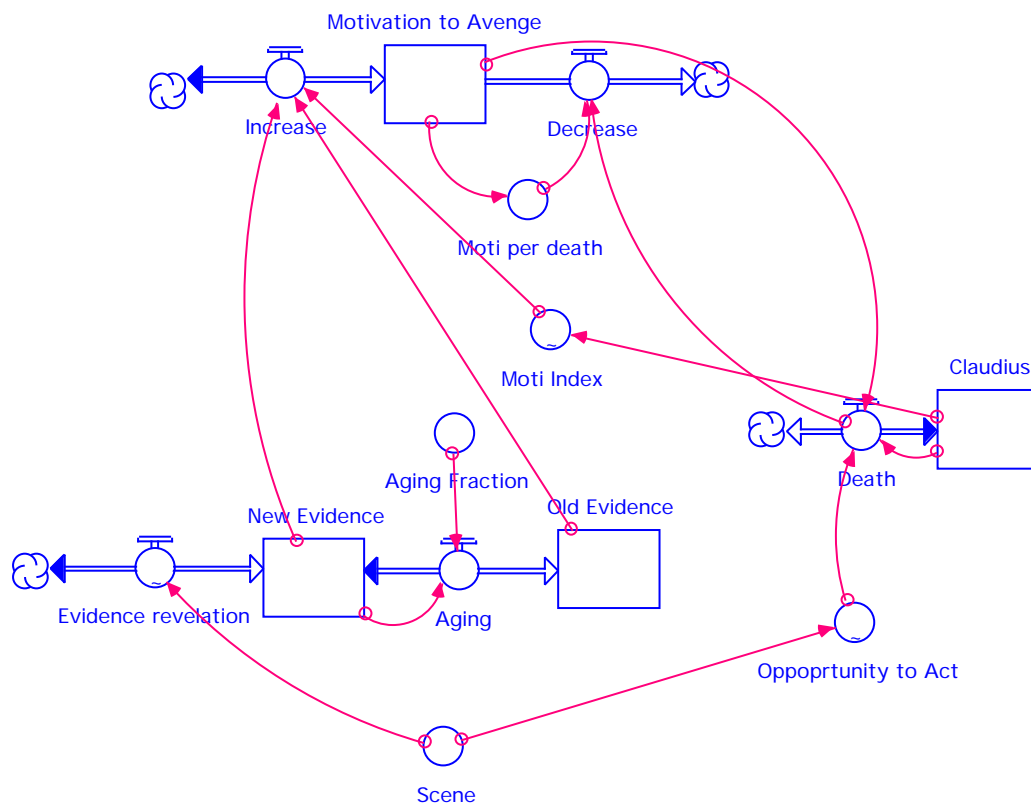
There are a number of issues that arise from the model.

• **Motivation to avenge**

Motivation to avenge is a stock that accumulates throughout the play and declines with the death of Claudius.

But this accumulation of motivation is at odds with the text. Hamlet's motivation does not remain constant or increase exponentially. It wavers during the play, for reasons that will be discussed later. However, as a starting point it is useful to assume that his motivation, or his motive as he would put it, for killing Claudius must be high after he first sees the ghost of his father in the Act I ii when he says

> *Hamlet:* Haste me to know't, that I, with wings as swift
> As meditation or the thoughts of love
> May sweep to my revenge.
> ### I v 29 - 31

The graph does not reflect this.

However, his motivation is "blunted" and there are a number of points in the play where this is clear. After the travelling players arrive at Elsinore, Hamlet has the lead actor deliver a speech from Aeneas. After the speech Hamlet delivers the soliloquy that begins

> *Hamlet:* Oh what a rogue and peasant slave am I
> ### II ii 560 ff

Then he compares the player's passion to his own

> *Hamlet*: What would he do
> Had he the motive and cause for passion
> That I have.

Hamlet knows his motivation is declining when, in his famous soliloquy, he says that

> *Hamlet:*   And enterprises of great pitch and moment
> ….
> Lose the name of action.

When the ghost appears in the closet scene, Hamlet knows why he is there.

> *Hamlet:* Do you not come your tardy son to chide
> That, lapsed in time and passion, lets go by
> Th'important acting of your dread command
>
> *Ghost:*   This visitation
> Is but to whet thy almost blunted purpose.

So there is ample evidence from the text that Hamlet's motivation is not evenly maintained through the play. His reasons for his delay (read lack of motivation?) are central to the play and are related to the "evidence' which is represented by two "Evidence" stocks, which accumulate throughout the play.

- **The nature of "evidence"**

In the model, New Evidence and Old Evidence, represented by a standard SD aging chain drive motivation.
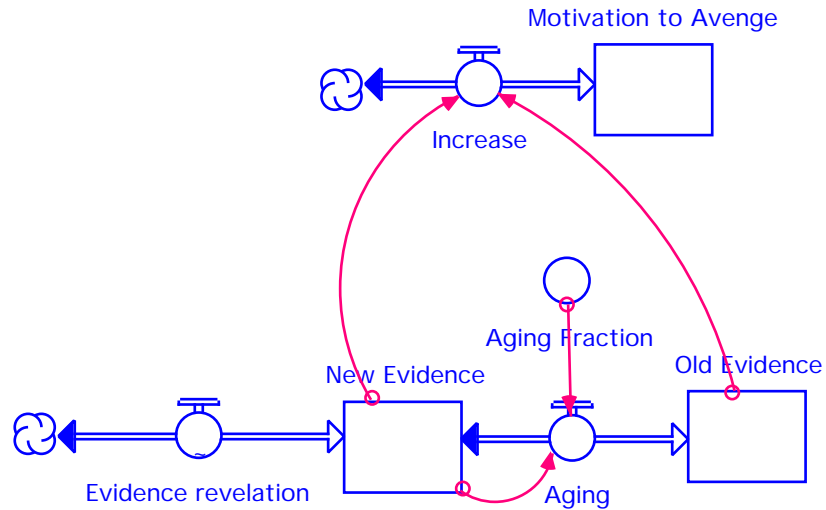
Hamlet's motivation is driven by two fundamentally different events and two quite different pieces of evidence: that of the Ghost and that of the play scene. These are neither old nor new but religious and secular.

These two graphs show an accumulation of new evidence which declines as it becomes "old evidence" and that it peaks around ACT III iii – iv.
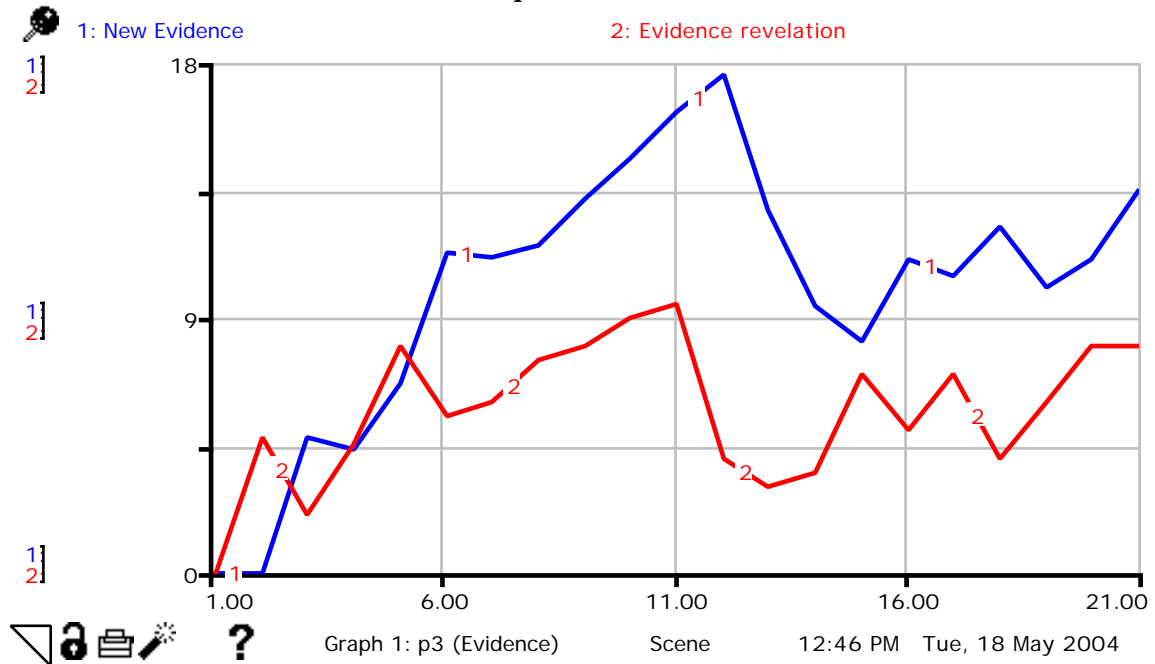
There are two problems with this. First, there is no suggestion in the text that Hamlet makes a distinction between old and new evidence, namely that the ghost's story becomes less relevant as the play goes on. And second, there is nothing to indicate that evidence is being revealed continuously throughout the play.

Hamlet's problem with "evidence" is whether to believe the ghost or not. His skepticism is deeply rooted in the fundamental religious views that the play explores. Understanding these religious tensions is central to the play. For Hamlet, they represent very real philosophical and religious problems.

Shakespeare is at pains to emphasize Hamlet's religious nature. He is fresh from Wittenberg because Claudius says

> *Claudius:*   For your intent
> In going back to school in Wittenberg,
> It is most retrograde to our desire
> > I ii 112 - 114

In addition, the deeply troubled nature of Hamlet's religious belief is seen in his most famous soliloquy

> *Hamlet:* But the dread of something after death.
> The undiscovered country, from whose bourn
> No traveler returns, puzzles the will
> > III i 78 - 81

This essentially spells out the Catholic and Protestant views of the afterlife related to the nature of purgatory.

First, the choice of Wittenberg is significant for Shakespeare's audience because it is the university of Martin Luther and the new Protestant view of the afterlife, which Hamlet would have been exposed to.

The medieval Catholic view was that after death souls went to purgatory to be cleansed of their sins before ascending to heaven. In particular, sinners who did not receive the last sacrament went to purgatory until their sins were purged, or in the case of the ghost, until justice was done for wrongs done to them in their lifetime. These souls could be manifest to the living who had an obligation to act on their behalf. Hamlet's father appears to be such a Catholic ghost. The Protestant view, which Hamlet would have learned at Wittenberg, proposed that there was no purgatory where sins were purged. Souls either went to heaven or to hell. Returning souls were sent by the devil to tempt the living to sin and eternal damnation. So Hamlet, the student from Wittenberg, has serious doubts about the nature of the ghost. The central part of the play is concerned with Hamlet's desire to confirm the veracity of the ghost's word. Significantly as a good Renaissance scholar, he seeks secular evidence for this.

When the Ghost first appears Hamlet's first instinct is

> *Hamlet:* Angels and ministers of grace defend us!
> Be thou a spirit of health or goblin damned
> Bring with thee airs form heaven or blasts from hell
> Be thy intents wicked or charitable,
> Thou comest in such a questionable shape
> That I will speak to thee.
>
> I iv 39 – 44

The ghost's problem is simple

> *Ghost:* I am thy father's spirit
> Doomed for a certain term to walk the night
> And for the day confined to fast in fires
> Till the foul crimes done in my days of nature
> Are burnt and purged away
>
> I v 9 - 13

> *Ghost:* ….by a brother's hand
> Of life, of crown, of queen at once dispatched.
> Cut off in the blossoms of my sin
> Unhousled, disappointed, unaneled
> No reckoning made, but sent to my account
> With all my imperfections on my head.'
>
> I v 74 - 79

Later in the play Hamlet makes clear his problem.

> *Hamlet:*   The spirit that I have seen
> May be a devil, and the devil hath power
> T'assume a pleasing shape, yea, and perhaps
> Out of my weakness and my melancholy,
> As he is very potent with such spirits,
> Abuses me to damn me. I'll have grounds
> More relative than this. The play's the thing
> Wherein I'll catch the conscience of the king.
>
> II ii 610 – 617

These are not trivial issues for the Shakespearean audience. Two successive monarchs, Mary and Elizabeth had been burning heretics at the stake on such questions of dogma.

Evidence Revelation

This variable is set in the model.
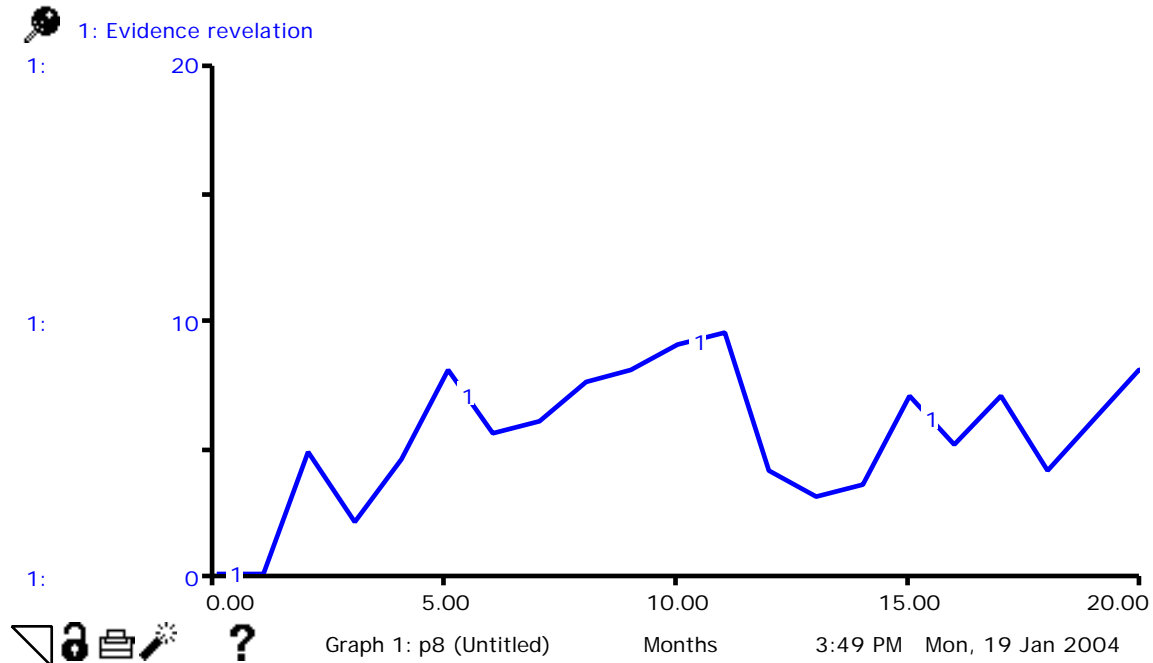
There are two early peaks. The first is in Act 1 ii where, in the second part of the scene, Horatio, Bernado and Marcellus tell Hamlet of the ghost and in the fifth scene (Act 1 v) where the Ghost confronts Hamlet with the evidence of his death. However, these are spikes, to suggest that there is a continuous, if uneven revelation between these scenes is simply not supported by the text.

A larger problem arises with the peak in the 10th and 11th scenes. The key and confirming piece of evidence has been revealed in the previous play scene after which Hamlet says:

> *Hamlet* I'll take the Ghost's word for a thousand pound
>
> III ii 292

For Hamlet, the evidence of the natural and supernatural have now confirmed each other. He needs no more evidence. The play's action now sweeps to its tragic conclusion.

The model however, suggests that the evidence keeps on coming with a peak in Act III iii, where Hamlet finds Claudius praying. We know for certain that Hamlet does not hear him because he comes on stage after Claudius' soliloquy and it is not normal for Shakespearean characters to hear each other's soliloquies.

The dramatic significance of the scene is not in relation to evidence but in Hamlet's decision not to kill Claudius. There is dark irony in this scene. Hamlet thinks the praying Claudius to be in a state of forgiveness, and when confronted with the perfect opportunity, will not kill him

> *Hamlet:* And so 'a goes to heaven,
> And so am I revenged. That would be scanned.
> A villain kills my father, and for that,
> I, his sole son, do this same villain send
> To heaven.
>
> III iii 74 – 78

But Claudius says after Hamlet has left

> *Claudius*: My words fly up, my thoughts remain below.
> III iii 97

- **Opportunity to Act**

It is also instructive to look at way the model handles opportunity to act, which shows it to be high in the early scenes but close to zero in the middle of the play.

Graph 1: p3 (Evidence)   Months   6:23 PM   Fri, 4 Jun 2004
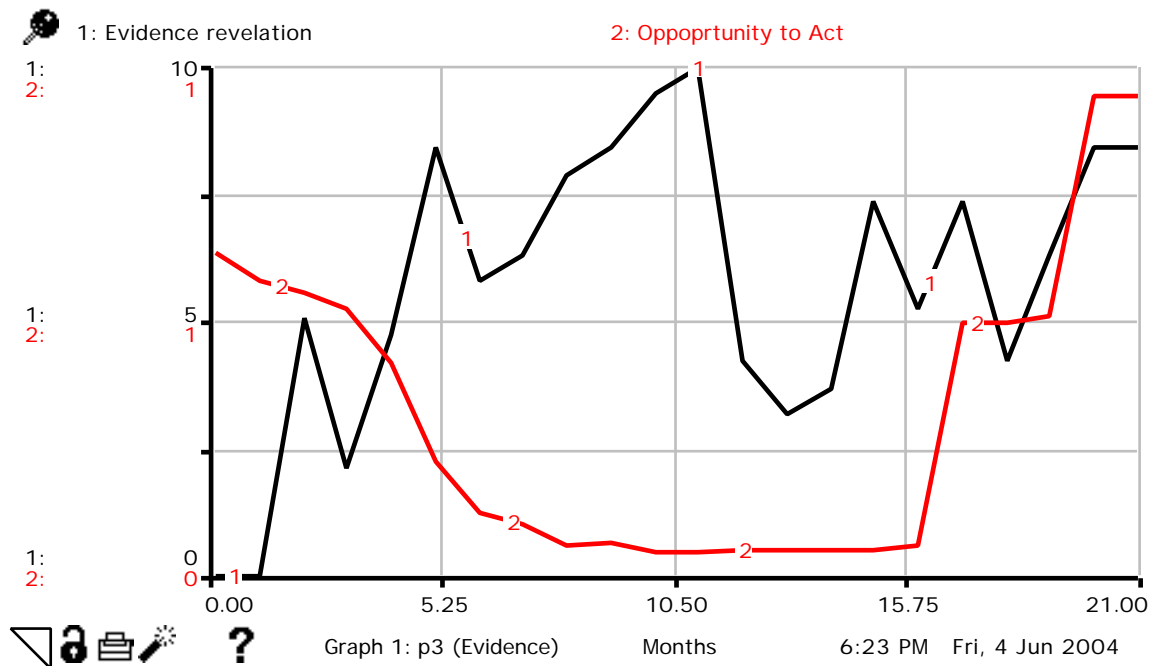
Evidence revelation peaks in around Act III Sc ii (10th scene in the play) which is the Play Scene. The next scene finds Claudius praying.

> *Claudius:* O, my offense is rank, it smells to heaven
> It hath the primal eldest curse upon't,
> A brother's murder."
>
> **III iii 36 - 38**

For the audience, this is confirmation of the ghost's story. However, Hamlet does not hear this, as he does not come on stage until Claudius has finished. The dramatic tension here is that the audience knows that this is the time for Hamlet to kill Claudius, but Hamlet pauses.

There is no corresponding peak in the "Opportunity to Act" graph at this point despite the fact that Hamlet says

> *Hamlet:* "Now might I do it pat, now 'a a-praying
> And now I'll do't.
>
> **III iii 73 – 74**

This scene is the only time the two are on stage alone together and represents what is arguably by far the best opportunity Hamlet has to kill Claudius: no witnesses, no guards.

But Hamlet, the theologian resolves

> *Hamlet* Up sword, and know thou a more horrid hent.
> When he is drunk asleep or in his rage
> Or in th'incestuous pleasure of his bed
> At game a-swearing, or about some act
> That hath no relish of salvation in't
>
> And that his soul may be as damned and black
> As hell. Whereto it goes.
>
> III iii 88 - 95

There is further dark irony in the tenth scene (III iv). Hamlet is in his mother's closet, her bedroom, when he hears a noise behind the arras. Gertrude fearing Hamlet will murder her cries out, a cry echoed from behind the arras by Polonius. Hamlet "makes a pass through the arras" and unwittingly kills Polonius. His first question is "Is it the king?" He reasonably expects Claudius to be in Gertrude's bedroom and fresh from "th'incestuous pleasure of his bed" and takes the opportunity of killing him.

He addresses the corpse

> *Hamlet*: Thou wretched, rash, intruding fool, farewell!
> I took thee for thy better.
>
> III iv 32 – 33

None of this is captured in the graphs, where motivation and opportunity peak in the final scene. There does appear a co-incidence around the II ii, but in this scene Hamlet and Claudius are not on stage together.

Graph 1: p2 (Untitled)   Scene   12:55 PM   Tue, 18 May 2004
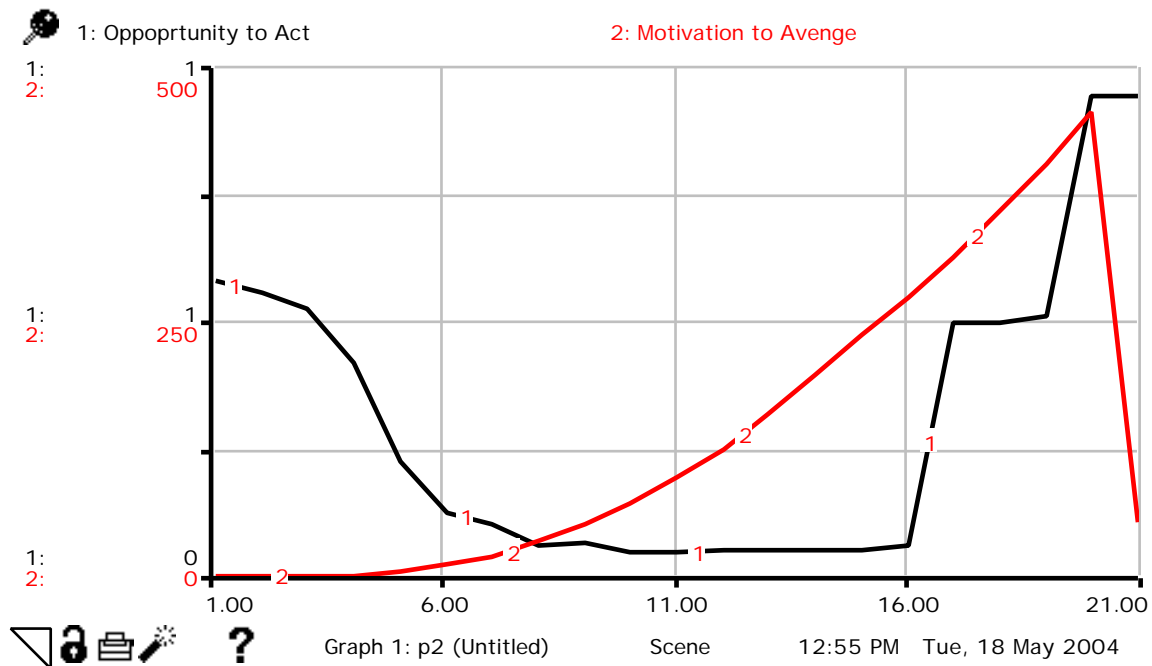
This is indicative of a more general problem in that Hamlet and Claudius are only on stage together on six occasions so opportunity to act is not continuous. In fact, it is probably fair to argue that Hamlet has only two opportunities to kill Claudius, in the prayer scene (III ii) and in the final scene (V ii).

Problems with time

The simulation run is for 20 time periods – one for each scene. A purist would quibble that the scenes are not of equal length nor is the time between them the same. For instance, we know the play scene and the closet scene are sequential but that the time between Hamlet's departure to England and return must allow time for sailing, pirate attacks and a journey back to Elsinore. The action of the play is not continuous – stocks do not continue to accumulate during these periods of time.

There are specific problems with continuity. For instance, the model assumes that evidence revelation is continuous even when Hamlet is not on the stage. In fact, Hamlet is onstage in 13 of the 20 scenes. It is only in three of these, the initial scene with the ghost (I iv) the play scene (III ii) and the Closet scene (III ii), where the ghost confirms Gertrude's innocence, that Hamlet receives evidence surrounding his father's murder. Certainly, the evidence of the final scene is of a very different nature as is Hamlet's response to it. Time is a complex issue in this play and the idea of action continuing off-stage is explored in Tom Stoppard's brilliant *Rozencrantz and Guildernstern are dead.*

Conclusion

A final and concluding caveat: the detailed discussion of the nature of time and the modelling of the two variables in the model is a manifestation of a deeper issue in this approach to literature and drama in particular. A play is not like life; it is an artistic representation of life that is interpreted with each production. Building models of a play such as *Hamlet* assumes a closer link between real-life and drama than really exists. A play "holds a mirror up to nature"; it is not nature itself, but a reflection. This reflection is, in the first instance, in the text and in what the author chooses to portray. The reflection is also in the performance of play, in what the producer and the actors choose to portray. This will differ from all other performances in subtle and not so subtle ways. A work of art exists in its re-creation in performance and in the audience response to that performance. The challenge to SD, in this particular case, is to show that it can provide insights not gained in 400 years of commentary and performance. Perhaps as they say in Australia, we should let this one go through to the keeper.

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The text used in this paper was

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