Corrected Thesis Summary

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Title page

Correction 0.0.1 *First page: submission date is 2011, but you have references from 2012 and even 2018 (p. 188)*

Answer 0.0.1 *The date at the front of the thesis, September 2011, is the date that the thesis was first submitted. This is compulsory according to the UofY formatting rules for PhD thesis, link* `https: // www. york. ac. uk/ research/ graduate- school/ academic/ thesis/ format/` *, see under 'Title page': "the month and year the thesis was first submitted for examination."*

Preamble

Below are corrections that apply throughout the thesis.

Correction 0.0.2 *Many typos remain in the document. Some are listed here, but do properly proof read the thesis*

Answer 0.0.2 *Applied throughout the thesis. The typos that are listed in the examiners' report are introduced as corrections in relevant sections.*

Correction 0.0.3 *Overall, you need to make fewer claims and provide more evidences of these claims. The thesis is a document that uncovers some new knowledge that could be factually inferred from your research.*

Answer 0.0.3 *Applied throughout the thesis.*

Correction 0.0.4 *Overall, you need to make fewer claims and provide more evidences of these claims. The thesis is a document that uncovers some new knowledge that could be factually inferred from your research.*

Answer 0.0.4 *Applied throughout the thesis.*

Correction 0.0.5 *You present "narratives" in opposition to "drama",*

1. *on p.6, "narrative versus drama",*

2. *p.7 "the difference between drama and narrative", etc.*

This is a dangerous route

1. *(e.g. drama could be regarded as a narrative genre;*

2. *theatre as a medium for storytelling, ...).*

Use instead

1. *"linear narratives" and*

2. *"interactive drama" and*

3. *don't present them as opposing each other.*

Make this amendment throughout the thesis, wherever it is relevant.

Answer 0.0.5 *Throughout the thesis:*

1. *I have broadened the definition of narratives and*

2. *removed any juxtaposition with drama"*

1

Introduction

1.1   Motivation

Correction 1.1.1   *1. Soften the claim made in the first sentence of the last paragraph on p.1 that suggests that current games have no interactive drama elements,*

2. or define clearly what you mean by "fully interactive drama".

Answer 1.1.1 *I have restructured the introduction:*

1. Softened the claim

2. moved it to the end of the first section to better motivated it.

3. improved the definition of "believability" for Correction: 1.4.2

Correction 1.1.2

Correction 4.7.3 continued,

See also p. 4 (distributing computing),

Answer 1.1.2 *Removed*

1.2   Background

I rewrote this section due to correction 0.0.5. It now supports the remaining emphasis of the thesis; Drama management and believability.

1.3 Directed Emergent Drama (DED)

1.4 Hypothesis

Correction 1.4.1 *In Section 1.4, In the Hypothesis,*

1. *you can remove "without an authoring bottleneck" from the hypothesis,*

2. *and not engage with this aspect in the concluding parts of the thesis,*

3. *or, if you wish to keep it, you should later substantiate that you have indeed achieved this.*

Answer 1.4.1 *I have removed it from the hypothesis*

Correction 1.4.2 *Similarly,*

1. *you either keep the quality of "believable" characters and substantiate it later,*

2. *or remove it (paragraph before last on p.6).*

Answer 1.4.2 *I'm retaining the "believable" quality and providing clearer definition and evaluation throughout the thesis.*

Correction 1.4.3   *1. Remove the last paragraph on p.7.*

2. *Write a paragraph explaining your aim of primarily assessing the technical feasibility of your solution.*

Answer 1.4.3 *I replaced the paragraph with a statement about primary modes of validation*

1.5 Thesis outline

2

Background

2.1 Introduction

2.2 Narratology

2.2.1 Narrative

Correction 2.2.1 *On p. 10 you qualify the sentence "The stone fell" as a "three word narrative".*

1. *Is it really a narrative?*

2. *Also "The king dies ...".*

3. *These are not narratives.*

4. *Revise the examples.*

Answer 2.2.1 *Removed and replaced with a more general example of how we have a tendency to see a narrative in most things.*

Correction 2.2.2 *Section 2.3 entitled "structuralism" should appear as theories of narrative (it now lies "between" narrative and drama).*

Answer 2.2.2 *"structuralism" as subject title has been removed and the section is now a part of the Narrative. This restructure also accommodates Correction 0.0.5 because it helps position drama as one part of narratology sharing both structure and background.*

Correction 2.2.3

Remove the game references in section 2.3.4 (The murder mystery); e.g. "played by the player".

Answer 2.2.3 *Removed*

Correction 2.2.4

On p. 13

1. *remove "parts of the murder mystery can get monotonous"*

2. *or provide a reference*

3. *or explain in more detail what you mean.*

Otherwise, it is superfluous.

Answer 2.2.4 *Removed*

Correction 2.2.5 *P. 13: incomplete ref Kno92*

Answer 2.2.5 *Corrected*

2.2.2   Drama

Correction 2.2.6 *Last paragraph starting on p.21 and continuing on p.22.*

1. *If you keep it, you need to substantiate the first and last sentence. As written, they are not true.*

2. *It is also possible to remove the whole paragraph, without affecting the argument.*

Answer 2.2.6 *I substantiated the paragraph and removed the last sentence.*

2.2.3   Game

Correction 2.2.7

Correction 4.7.3 continued,

21 (complete RPG experience),

Answer 2.2.7 *Replaced by direct quotes from the RPG community.*

2.2.4   Summary

Correction 2.2.8 *Insert a concluding section at the end of 2.5 and before 2.6 to explain how the points made so far in this chapter relate to your work.*

Answer 2.2.8 *I added a summary section and restructured the preceding sections into one whole section called Narratology to better combine the terms together for Correction 0.0.5*

2.3   Computation

2.3.1   Belief Networks

2.3.1.1   The graph structure

2.3.1.2   The vertices structure

2.3.1.3   Assigning conditional probability distribution

2.3.1.4   Marginal distribution

2.3.1.5   Bayes' rule

2.3.1.6   Causal networks

2.3.1.7   Evidence propagation via serial connection

2.3.1.8   Evidence propagation via divergent connection

2.3.1.9   Evidence propagation via convergent connection

2.3.1.10   D-separation

2.3.1.11   Relevance Reasoning

2.3.1.12   Object-Oriented Bayesian Networks (OOBNs)

2.3.1.13   Decision Networks

2.3.2   Game Theory

2.3.3   Summary

Correction 2.3.1 *Insert a concluding section at the end of 2.8 and before 2.9 to explain how the points made from 2.6 to 2.8 relate to your work.*

Answer 2.3.1 *I added a summary section and restructured the preceding sections into a computation section for clarity*

2.4   Former work

2.4.1   Dynamic Plot Generating Engine

2.4.1.1   The plot

Correction 2.4.1 *you qualify the sentence "The stone fell" as a "three word narrative".*

    1. Is it really a narrative?

Answer 2.4.1 *Removed "The stone fell"*

2.4.2 Rational Dialogue Engine

2.4.2.1 Sentences and replies

Correction 2.4.2 *On p.61, discuss what does it mean to*

1. *contradict "Harry's knowledge 75%" but "... be identical to 25% of Harry's knowledge"*

2. *(by the way, you probably need "and" instead of "but", as the two phrases are complementary).*

3. *In general, explain what it means to contradict someone's knowledge by X% ?*

Answer 2.4.2 *I added clarification on contradiction where the term is introduced. The states are mutually exclusive, you can't be in two states at the same time; instead of replacing "but" with "and" I chose to remove the "but ...".*

2.4.2.2 Finding equilibrium

Correction 2.4.3 *The example on p. 64 and 65 (Horace and Linda) is stated without any explicit reference to the underlying model.*

1. *In order to understand what "equilibrium" means in terms of the underlying model, the example will have to be described*

2. *also as the implemented model, such that any statement made with regards to the system's behaviour at the interface with the end-user (e.g. "if Horace was indebted to the victim then he may want to lie") could be also seen at the level of the underlying model.*

Answer 2.4.3 *I added clarification, the section is about the MAIDs which are the underlying model.*

2.5 Summary

Correction 2.5.1

Correction continued,

67,

Answer 2.5.1 *Now summarises verbatim quotes from the RPG community.*

3

Related work

Correction 3.0.1

At the beginning of Chapter 3 recall to apply the recommendation (*) above. Recall that it is to be applied throughout the thesis, wherever relevant. This is just another reminder.

Answer 3.0.1 *Applied*

Correction 3.0.2

Remove the claim "none of them have been shown to be integrable with ..." on p. 68 or provide a reference for it.

Answer 3.0.2 *Removed*

Correction 3.0.3

Join Sections 3.2 and 3.3 and thus remove the distinction made between

1. *"Story Strong" and*

2. *"Emergent" systems,*

which is controversial.

Answer 3.0.3 *Removed*

Correction 3.0.4

[optional] You could analyse the emergent versus the authored (story strong) quality of each system, but this is not necessary.

Answer 3.0.4 *I did not do this optional analysis.*

Correction 3.0.5

However, it is necessary to conclude each review with its relevance to your work:
e.g. along the following lines:

1. *what have you adopted;*

2. *what have you disregarded;*

3. *what have you improved.*

Answer 3.0.5 *I have added metrics for each of the DED elements and added a table by each system to record its score.*

Correction 3.0.6

At the end of this section (i.e. before the current Section 3.4)

1. *you can add a summary of the review,*

2. *outlining in particular what new lines of development you are taking in your research.*

3. *It is possible that this is what you intended to do with Section 3.5, but this section, actually, brings new aspects to the argument, which have not been covered in their individual review*

4. *(e.g. replay-ability, intractability, authoring bottleneck). See next recommendation.*

Answer 3.0.6 *I created a summary table in a final "summary" section with the average drama and agent metrics score for each system. This table is later used in chapter 4 to effectively compare the DED to the other systems and apply corrections.*

Correction 3.0.7

In order to substantiate some of the claims you are making in Section 3.5, you should include in the review of the existing drama/story systems in the sections resulting from joining 3.2 with 3.3 criteria such as:

1. *replay-ability,*

2. *computational tractability,*

3. *authoring effort,*

4. *protagonist embodiment,*

5. *Immersion and believability,*

6. *drama awareness and*

7. *decentralised management,*

to allow you to substantiate the conclusions you now simply state in section 3.5.

Answer 3.0.7 *Relevant attributes were added to the summary table.*

Correction 3.0.8

In this section you should keep away from speculations and include only statements that can be concluded at least from the systems you analysed. For instance,

1. *the statement "Another similar view is that a story should be authored for each game rather than an existing novel" on p. 90*

   (a) *has no reference,*

   (b) *nor can it be inferred from the analysis of the previous systems.*

   (c) *If it cannot be substantiated, it should not be stated.*

2. *Similarly, the last two paragraphs on p. 90.*

Answer 3.0.8 *Removed*

4

Directed Emergent Drama (DED)

4.1 Introduction

4.2 Implemented in SpatiaOS

4.3 Schemas

Correction 4.3.1

On p. 4.3.1 you state that "Assigning schemas to specific acts helps to pace the drama and retain a drama structure ...".

1. *Only make such statements if you can provide evidence for it through evaluation.*

2. *Currently, this statement is not substantiated through evaluation, therefore you should not make it here.*

Answer 4.3.1 *Substantiation of the statement improved and added to the evaluation section as well.*

Correction 4.3.2

Similarly,

1. *"The aim is to build tension, suspense and reach a climax with a resolution at the end" on the same page.*

2. *Only make such statements if you can prove or disprove you have achieved such goals.*

Note that you do not need to engage heavily with dramatic qualities of the experience, hence you can minimise your engagement with such issues throughout the thesis.

Answer 4.3.2 *Please note that Pacing and structuring the drama are purely technical elements based on the structuralists' work in the Background chapter. Substantiation of the statement improved and added to the evaluation section as well.*

Correction 4.3.3

The bare minimum you do need to evaluate, though, is whether the experience generated by the system was

1. *indeed pleasurable or*

2. *at least acceptable.*

Answer 4.3.3   *1. Added technical substantiation of acceptable.*

2. *Added evaluation of "pleasurable" and "acceptable" to the evaluation chapter.*

Correction 4.3.4

On p.103, give a couple of examples of

1. *"drama goals" and*

2. *"actor goals"*

to better describe the differentiation between them as used in your system.

Answer 4.3.4 *Added a couple of examples of drama and character goals for both a murder mystery scenario and the Poppie scenario*

4.4 Director

Correction 4.4.1

On p. 105, you say "In vast multiplayer ... an intractable computation problem". You need a reference or you need to provide some backing up evidence.

Answer 4.4.1 *Reference and substantiation added*

Correction 4.4.2

P. 105: Section ??

Answer 4.4.2 *Reference corrected.*

Correction 4.4.3

On p. 107 you say "generate a knowledge base with minimal manual input".
Explain, It is not clear what you mean by minimal.

Answer 4.4.3 *I clarified the passage.*

4.5   Actors

Correction 4.5.1

P. 108: in ??ms

Answer 4.5.1 *Reference corrected.*

Correction 4.5.2

In section 4.5 you have subsections discussing neuroticism, extraversion,
openness, agreeableness, and conscientiousness.

   1. *Unless you explain how these have been modelled in your system and,*
      later in the thesis, describe how they have been evaluated, they need to
      be removed.

   2. *As they are currently described, they are mere wishes/goals with which*
      you have not engaged in the reported work.

   3. *[Optionally] You can replace it with some aspects related to the imple-*
      mentation (but you don't have to).

Answer 4.5.2 *I have improved the description and emphasised how the*
traits are involved int he resat of the DED chapter and include a whole section
on them in the SL evaluation section.

4.6   Players

4.7   Directed emergence

Correction 4.7.1

On p. 137 You say "Because ... (whereas human actors cannot)".

   1. *Explain what you mean.*

   2. *Human actors can pass messages between them!*

Answer 4.7.1 *Removed*

Correction 4.7.2

On p. 137 you say "They can only choose rational actions".

    1. Explain what you mean by it,

    2. particularly by "rational",

    3. or remove.

Answer 4.7.2 *Removed*

Correction 4.7.3

On p. 137 you say "The DED enables a continuous emergent logical dialogue that is unparalleled in other systems in the field".

    1. Avoid such exaggerated and/or

    2. un-sustained claims.

Answer 4.7.3 *Removed*

Correction 4.7.4

Correction 4.7.3 continued,

143 (pre-authoring).

Answer 4.7.4 *Removed*

Correction 4.7.5

In Section 4.8.2 (p. 138) you are talking about pacing the drama at the end-user behavioural interface.

    1. You have to explain how this is controlled at the implementation/model level

    2. or you should not engage with this issue at all.

Answer 4.7.5 *I have explained this better, it is a fundamental elent of how the engine works and it can be better understood by looking at the logs*

Correction 4.7.6

P. 139: Un order

Corrected

Answer 4.7.6 *Corrected.*

Correction 4.7.7

In Section 4.8.3 you say "this should be done ... via natural language processing".

1. *Why?*

2. *Says who?*

3. *You can remove this statement.*

Answer 4.7.7 *Removed*

4.8   Comparison to related and former work

Correction 4.8.1

Remove the second paragraph on p. 140 ("We use lessons from ...").

1. *It is naive and*

2. *it is not clear what its role is in the thesis.*

Answer 4.8.1 *Removed*

Correction 4.8.2

On P. 141: Heavy Rain should not be associated with "emergent drama"

Answer 4.8.2 *Removed*

Correction 4.8.3

Section 4.9.4 is empty!!

Answer 4.8.3 *Removed*

Correction 4.8.4

In Section 4.9: no mention of system that explicitly deal with conflict (e.g. Stephen Ware research).

Answer 4.8.4 *IThis section has been removed and merged with the realted section and by creating the rama metrics to effectively compare my work with others*

Correction 4.8.5

This part should be reworked, the argumentation being spread into many small not-evidenced claims, instead of focusing on main contributions and originalities in the work. For example,

1. *IN-TALE is not a simple branching narrative, so authors do not write storylines.*

2. *It could also be claimed that in DED, different options for the farmer are known in advance, they are included in the design of knowledge structures and schemas.*

3. *What would be more relevant is to look at agent-based approaches and discuss their drama awareness (e.g FearNot!).*

4. *Look how drama goals and character goals are managed in IDtension or other conflict-based systems.*

5. *Compare with Thespian, as it also uses a Theory of Mind approach.*

6. *Finally, a more explicit reference to Louchart's actor-based approach would be relevant.*

Answer 4.8.5 *Removed*

4.9 Summary

5

Evaluation

Correction 5.0.1   *1. Enrich and enlarge Chapter 5, in order to provide more evidences of some of the claims.*

2. At least discuss the results in more detail.

Answer 5.0.1 *I have significantly increased the evaluation both computationally and by adding and analysing the user user study*

Correction 5.0.2

P. 145: teh

Answer 5.0.2 *Corrected.*

Correction 5.0.3

Continued from Correction 4.8.3; So is 5.1.1!!

Answer 5.0.3 *The chapter's structure is fundamentally changed see Correction 5.0.1*

Correction 5.0.4

On p.148, the sentence is even not finished!

Answer 5.0.4 *Removed*

Correction 5.0.5

More specifically: Chapter 5 should be about Evaluation (Conclusions are in the next chapter)

The minimum you have to substantiate is

1. *that the experiences generated by your system in the three examples have been*

   (a) *meaningful and*

   (b) *presented some degree of enjoyment to the end-users*

   (we are purposely using vague terms here to allow you to define the characteristics you should evaluate/measure).

This will allow you to claim that you are, at least in broad lines, in the area of interactive drama.

Answer 5.0.5 *I have drawn on the compellingness criteria to better formulate tmy argumantsand specifically defined drama metrics to better evaluate myt work and measure it agains others work.*

Correction 5.0.6

You should also provide

1. *a detailed analysis of technical aspects of the implemented system and abstract model, such as*

   (a) *real-time functionality and*

   (b) *running for extended periods of time*

   (see what you state as aims in the Hypothesis section).

2. *This should allow you to state that*

   (a) *goals are stated as expected,*

   (b) *agents interact as planned,*

   (c) *conflict situations are resolved as intended, etc.*

It is going to be hard to prove these characteristics of your system, but you can substantiate them explicitly analysing the logs generated at run time.

You need a substantial amount of evidence at this end to make up for not engaging with an analysis of dramatic qualities of the experience through end-user studies.

Answer 5.0.6 *I have uplopaded the code and logs of the systems and provide scripts to analyse the logs that substantiate my findings.*

Correction 5.0.7

You should also give an account of

1. *the authoring effort required to put together interactive dramas in your model and*

2. *compare with some other different approaches.*

Answer 5.0.7 *I desided to not engage in the authoring effort. However I have uploaded the all the content used.*

1. *Added description of authoring and design of each application.*

2. *Authoring bottleneck removed from thesis see 1.4.1; not engaging with the authoring bottleneck analysis.*

Correction 5.0.8

The weenrich.com link is dead. Discard it.

Answer 5.0.8 *Removed*

5.1 Murder mystery in Second Life

5.1.1 Development, design and authoring

5.1.2 Gameplay

5.1.3 Evaluation

Correction 5.1.1

P. 148: Section ?? + last sentence unfinished

Answer 5.1.1 *Corrected.*

5.2 Web-based murder mystery

5.3 Mistlethorpe

Correction 5.3.1

P. 150: devises -> devices

Answer 5.3.1 *Corrected.*

6

Conclusion

Correction 6.0.1

In Conclusion you should bring up the main contributions of your research and make sure you state only aspects that are backed up by evidence. In the current text, the following statements are problematic:

Answer 6.0.1 *Conclusion chapter is reworked to start by introducing the contributions.*

Correction 6.0.2

"We have fully decentralised the drama ..." - not true, as there still is a shallow central management agent. Amend.

Answer 6.0.2 *Removed*

Correction 6.0.3

"... this method increases the interestingness of the drama" - not substantiated.

Answer 6.0.3

Correction 6.0.4

"... it increases the conflict and tension" - not substantiated

Answer 6.0.4

Correction 6.0.5

"... results in a very powerful emergence" - what does it mean? How do you substantiate "powerful"?

Answer 6.0.5 *Removed*

Correction 6.0.6

Again, you have a reference to interestingness and continue with "as a side effect of a minor action" - what does this mean? It needs to be explained and substantiated.

Answer 6.0.6 *Rewmoved*

Correction 6.0.7

"... response time was well within 1 second" - you need to provide further evidence for this in the previous Evaluation chapter

Answer 6.0.7 *Substantiated with 4 years of logs*

Correction 6.0.8

in the "minimise authoring" paragraph on p. 164 you say "DED has no pre-authoring". This is inaccurate.

1. *Putting together the BN is part of authoring.*

2. *Compiling all the dialogues is part of authoring.*

3. *Amend this paragraph to make it more accurate.*

Answer 6.0.8

Authoring bottleneck removed from thesis see Correction 1.4.1; paragraph removed.

Correction 6.0.9

The comparison with Façade on p. 165 is naive. Revise and provide a more reliable comparison.

Answer 6.0.9

Authoring bottleneck removed from thesis see Correction 1.4.1; comparison removed.

Correction 6.0.10

In Section 6.1 you mention encountering "unexpected side effects".

1. *You need to define what side effects are and*

    2. you should provide such an analysis based on your examples in the Evaluation section.

Answer 6.0.10 *Removed*

Correction 6.0.11   *1. Putting together the BN is part of authoring.*

    2. Compiling all the dialogues is part of authoring.

    3. Amend this paragraph to make it more accurate.

The comparison with Façade on p. 165 is naive. Revise and provide a more reliable comparison.

In Section 6.1 you mention encountering "unexpected side effects".

    1. You need to define was side effects are and

    2. you should provide such an analysis based on your examples in the Evaluation section.

Answer 6.0.11 *I have remopved the authoring parts*

6.1   Chapter corrections

Correction 6.1.1 *Many typos remain in the document. Some are listed here, but do properly proof read the thesis*

1. *First page: submission date is 2011, but you have references from 2012 and even 2018 (p. 188).*
2. *P. 13: incomplete ref Kno92*
3. *P. 69: first sentence*
4. *P. 105: Section ??*
5. *P. 108: in ??ms*
6. *P. 124: missing brackets in 2nd paragraph*
7. *P. 139: Un order*
8. *P. 145: teh*
9. *P. 148: Section ?? + last sentence unfinished*
10. *P. 150: devises -> devices*
11. *P. 163: trailing "s" at the end of the 1st paragraph.*
12. *P. 165: re-read first paragraph of 6.1*
13. *P.5 primary motor, not prima*
14. *P. 59 reference to section missing in 2.10.3*

15. *P. 105 has Section references with nu numbers and with "??" instead.*

16. *P. 164 (in minimise authoring" replace "We aim" with "We aimed".*

Answer 6.1.1 *I have Addressed all of these and thoutpoughly proofread the thesis.*

6.2 Limitations

6.3 Future work

References