

Intertextuality as cognitive modelling

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Abstract

The aim of this paper is to demonstrate a way in which the concept of cognitive modelling can be applied to studies of intertextuality. The paper suggests a fresh way of looking at intertextuality – from the perspective of the cognitive processes involved in decoding intertextual references, namely, analogical mapping across different domains. Our knowledge of cognitive processes is largely based on the study of cognitive processing of texts, but texts with intertextual references have until now been a less well-studied area of cognitive research.

I define three different ways in which texts relate to each other: hard modelling, soft modelling and loose association. From a cognitive perspective, I suggest that mental processing of these texts involves different knowledge structures which I describe using Schank's (1982, 1986, 1999) theory of dynamic memory.

Keywords: analogies, cognitive processing, Hamlet, intertextuality, mapping

1. Introduction

The notion of intertextuality originates with Kristeva's reading of Bakhtin's "polyphony", a term first used by Bakhtin with reference to Dostoyevsky's novels (Bakhtin 1984a; Kristeva 1974, 1986). Polyphony, in Bakhtin's terms, is the multiplicity of independent voices and their diverse discourses that are interwoven to form the whole of a novel (Bakhtin 1984a; 1984b). Kristeva developed this notion of polyphony further into the concept of intertextuality. In doing so she diverged from Bakhtin's original idea: for Kristeva intertextuality is present in any text and "any text is constructed as a mosaic of quotations; any text is absorption and transformation of another" (Kristeva 1986: 37). The idea of intertextuality soon became an essential notion in semiotics, text semantics, narratology and cognitive science.

Roland Barthes (1974) also speaks about the plurality of intertextual codes as “*déjà lu*” (already read) and as a “mirage of citations”; he stretches the concept of intertextuality to encompass any personal reader’s experiences: “The I that approaches the text is itself already a plurality of other texts, of infinite or, more precisely, lost codes ...” (1974: 10).

According to Culler (1981: 102), intertextuality is “indefinite”, “where conventions and presuppositions cannot be traced to their sources”. In this all-embracing sense, intertextuality is not restricted to text, but also involves the notion of general cultural context and the reader’s personal background knowledge. Genette also looks at broad relationships between texts; his “transtextuality”, a more inclusive term than intertextuality, embraces “all that sets the text in a relationship, whether obvious or concealed, with other texts” (Genette 1997: 1) and his more genre-specific “hypertextuality” still refers to “any relationship uniting text B ... to an earlier text A” (Genette 1997: 5). This broad understanding of intertextuality often leads to debate about the meaning of the text: does the text have an independent meaning or is it different for every reader? Is authorial intention discernible in a text or is the text wide open to different interpretations?

More recent attempts to study intertextuality either place it again in the historical-cultural context pioneered by Kristeva and Bakhtin (Spengler 2015) or use Genette’s types of intertextuality to explore the concepts of identity in discourse (Austermühl 2014).

In recent years there has been growing interest in taking a closer look at intertextuality by digital analysis of texts with intertextual references. Among these projects are the *HyperHamlet* project, which resulted in creating a corpus of references to *Hamlet* in literature around the world (Trillini & Quassdorf 2010) and the project *Digital Dante* (Van Peteghem 2015). Another digital project, Tesseract, has created a tool for detecting intertextual references in ancient texts (Coffee et al. 2013). The authors focus on linguistic features for computer detection of intertext (Coffee et al. 2012) and propose an algorithm allowing digital detection of intertextuality which includes lemma identity, word frequency, and phrase density (Forstall et al. 2015: 503).

What is my research seeking to achieve for the study of intertextuality? Genette (1997: 5) noted that the *Aeneid* and *Ulysses* are hypertexts of the *Odyssey* “to varying degrees and ... on different grounds”. I hope that the present research will help in understanding the degree to which one text draws on another and on what grounds the similarities are drawn. I suggest a way in which the notion of cognitive modelling can be used to understand the mechanisms of intertextuality. Viewing intertextual relationships from a modelling perspective allows us to take a closer look at the degree of proximity between texts.

This paper thus suggests a different way of looking at intertextuality: from the point of view of the cognitive processes involved in decoding intertextual references. Cognitive processes of text decoding have been widely researched in literature, but texts with intertextual references present a lesser studied area in such research.

According to Beker et al. (2016: 1162), “little is known about the reading processes involved when reading multiple texts”.

This paper will attempt to answer two questions: how are intertextual references processed, and what cognitive processes are involved in understanding such references?

The novelty of this paper lies in:

1. using cognitive modelling analysis to understand the processes of comprehending intertextual references
2. proposing three ways in which texts can relate to each other – hard and soft modelling and free association
3. suggesting that these three different types of intertextual relationship are processed differently in the reader’s mind

The paper starts with a brief overview of the concept of modelling and its general use in the sciences and humanities. Next I discuss Schank’s dynamic memory theory and the ways it can be used in the analysis of texts with intertextual references. In section 4 I discuss the way in which cognitive concepts of modelling and analogy can be used to describe intertextual relationships, and section 5 briefly sums up the main contribution of this paper.

2. Models: Understanding through analogies

Modelling has been regarded by scholars in various fields as a fruitful method of explaining and understanding by analogy (see, for example, Ramsey 1964; Checkland 1990; Leech 1990; Williams 1990; Gibbs 1994). In decoding texts with intertextual references, readers do exactly that – they uncover hidden links by identifying analogies between texts and finding explanations for them. On this basis I suggest that an analogical modelling approach can be used to analyse and categorise intertextual references.

A *model* is generally defined as a representation or description of an object or process. Many of those who study models commonly make a distinction between models that imitate the original and are based on identity and reproduction of the original (scale models) and models that reproduce “the *structure* or web of relationships in an original” (Black 1962: 222; italics original) and are based on isomorphism (analogue models). My main concern in this paper is analogue models, those which reproduce the structure of the original, its nodes and relationships.

The cornerstone of analogue modelling is the concept of analogy which is widely used in research in both the humanities and sciences (Hesse 1970). Hesse defines analogy in the most general terms as a relationship between two objects having common properties (1970). For example, analogical relations exist between the properties of sound and light, which means that pitch, as a property of sound, has

(by analogy) the same role as colour in relation to light. In the same way, a bird's wing has a similar function to a fin in the anatomy of a fish. Political rhetoric representing the state as a parent figure for citizens is also based on analogy. Hesse (1970: 59) notes that the essential property of an analogue model is one-to-one correspondence of properties and relations between a model and its original.

An analogy uncovers general relational links that bring us closer to understanding both the original and the model. Thus, in A.E. Housman's acerbic remark, "I could no more define poetry than a terrier can define a rat" (Housman 2007: 68), analogical links between the sets of terms poet-poetry and terrier-rat are based on the specific relations between terms in both sets, which can be described as *one cannot define the other*. Hesse's treatment of analogies in a model sums up the common approach to modelling and analogy across academic disciplines: both are concerned with similarities between terms as well as between relations.

Another important aspect of the theory of analogy is its connection to the concept of *knowledge domains*. Thus, analogy is perceived as a set of structured connections between two domains of knowledge (Gentner 1983, 1989; Johnson-Laird 1993; Vosniadou & Ortony 1989; Eysenck & Keane 1995; Holyoak & Thagard 1995; Shelly & Thagard 1996). The theory of analogy developed by Holyoak & Thagard (1995) is based, like many other theories, on an assumption that analogy is a correlation between interconnected patterns from two different domains of knowledge. In establishing analogical relationships, a person effectively transfers knowledge between two different conceptual domains, sometimes known as the *source domain* (pre-existing in the memory) and the *target domain* (to be explained through similarity) (see, for example, Vosniadou & Ortony 1989: 6-7; Eysenck & Keane 1995: 393).

In the previous examples two conceptual domains are mapped onto each other: properties of sound and properties of light; bird anatomy and fish anatomy; parenting and citizenship; dogs and poetry. Analogous elements from different domains are commonly referred to as *nodes*.

Transference across domains in analogical modelling is known as *mapping*, where not only do the nodes represent objects in the source domain mapped onto nodes in the target domain, but also, importantly, the relations between them (Gentner 1983, 1989; Vosniadou & Ortony 1989: 6-7; Eysenck & Keane 1995: 393).

Psychologists who study analogies generally agree on the explanatory, heuristic function of analogical mapping. Johnson-Laird (1993: 313), for example, refers to analogue modelling as providing "tools for thought and explanation" where understanding is achieved by reference to the analogous source domain.

Analogical thinking is often thought of as a basis for creativity. Koestler's work on creativity (1964) in various fields including literature, the arts and the sciences

suggests that creativity often stems from the unusual juxtaposition of two sets of very different ideas from different domains (Housman's remark is one example of such mapping).

Even though linguistic models have been used in the studies of various aspects of language – lexis, grammar, syntax, semantics, narratology – analogical modelling between, and within, texts has not received much attention in literary studies in general and in studies of intertextuality in particular. An interesting attempt to use an analogical framework for studying the interpretation of literary texts was undertaken by Holyoak (1982) who developed a general model of analogical interpretations in literary texts. Holyoak points out the differences between problem-solving in literary interpretation and problem-solving in general. He claims that analogical thinking is highly relevant to literary interpretation and suggests a taxonomy for literary analogy. In literary interpretation, according to Holyoak, “the idealized reader fully understands the text base, but must notice a covert target topic and then use the text base to generate the analogical interpretation” (1982: 115). This theory, further developed by Holyoak & Thagard (1995) and Shelly & Thagard (1996), describes analogy as establishing parallels or mapping between two domains of knowledge. It can be illustrated by Holyoak & Thagard (1995) analysis of a Richard Barnfield poem from 1598:

A Comparison of the Life of Man

Man's life is well compared to a feast,
 Furnished with choice and variety:
 To it comes Time; and as a bidden guest
 He sits him down, in pomp and majesty:
 The threefold age of Man the waiters be.
 Then with an earthen voider, made of clay,
 Comes Death, and takes the table clean away.

(qtd. in Holyoak & Thagard (1995: 7)

The poem is an interesting example of mapping nodes of different domains (such as *guest - time, courses - events, waiters - age*, etc.) from the source domain of a *feast* onto the target domain of *life in general*. The parallelisms between nodes in this poem are not unlike those between the two domains in proverbs, sayings and parables: the source domain is concrete, the target domain is generalised, and the parallelism between the domains is based on a one-to-one correspondence between features of two different cognitive domains.

Mapping and analogy between cognitive domains (Gentner 1983, Holyoak & Thagard 1995) are used as a productive method of analysis in many other areas such as mythology (Shelly & Thagard 1996) and metaphor (Lakoff & Turner 1989; Lakoff 1990; Gibbs 1994). The cognitive process of mapping across conceptual domains is considered central to metaphor. Lakoff and Turner (1989) speak of mapping as a set of correspondences between two conceptual domains. Their analysis of a poem by

Emily Dickinson shows that it is built around two metaphors, LIFE IS A JOURNEY and DEATH IS GOING TO A FINAL DESTINATION:

Because I could not stop for Death—
He kindly stopped for me—
The Carriage held but just Ourselves—
And Immortality.

(qtd. in Lakoff & Turner 1989: 1)

Both metaphors are created by the mapping of two cognitive domains: the source domain of a journey and the target domain of life; and the source domain of a final destination and target domain of death.

Analogical relationships in texts can range from a word or a sentence to the whole text. Metaphors, similar to the ones studied by Lakoff (Lakoff & Johnson 1980; Lakoff & Turner 1989), and extended metaphors that carry on through a part of a text, similar to Hemingway's comparison of Scott Fitzgerald's talent to the pattern on a butterfly's wings (discussed by Holyoak 1982: 116-119) can also be considered textual analogies. My main concern in this paper, however, is analogical modelling between entire texts.

The concept of analogue modelling and problem-solving can indeed be applied to the way whole texts relate to others: *West Side Story*, for example, can be seen as an analogue model of *Romeo and Juliet*. In understanding the intertextual reference to *Romeo and Juliet*, the reader uses the explanatory mechanism of analogue mapping between two domains – the source domain of *Romeo and Juliet* and the target domain of *West Side Story*. In the musical, the characters, the relations between them, the plot moves, and the main themes are unequivocally recognisable as modelled on Shakespeare's play. The analogy is established between the characters (for example, Romeo and Juliet – Tony and Maria, Sharks and Jets – Montagues and Capulets) as well as between the relationships of the two sets of characters – love, feud, etc. I will return to the example of *West Side Story* in the next section, which introduces Schank's (1999) theory of dynamic memory.

3. Dynamic memory, analogy and intertextuality

In this section, I will introduce Schank's (1999) cognitive theory of dynamic memory as a way to explore how textual similarities are established and understood. Dynamic memory theory is the theory of high-level memory structures which organise our knowledge and, among other things, participate in forming analogies between different

events and situations. Information about recurrent situations is stored as *scripts* – specific sets of information associated with specific situations that frequently repeat themselves. Scripts are organised into higher-level entities – *scenes*, which contain information about more general types of situations, and which “transcend the specifics of a situation, so they capture generalities” (Schank 1999: 19). Scenes, in their turn, are organised into *Memory Organisation Packets* (MOPs). According to Schank, MOPs consist of a number of generalised, relatively abstract scenes which can be social or personal in nature. MOPs organise sequences of scenes having a particular goal, and can contain some contextual information, as opposed to scenes that are mainly generalised. To use a simple example from Lehnert & Ringle (2014: 486), one’s family visits could be organised by a personal MOP consisting of the following sequence of scenes:

FAMILY ARRIVES → HUGGING → PRESENT GIVING → FAMILY NEWS TELLING → DINNER → FAMILY FIGHT → LEAVE IN ANGER.

MOPs are thought of as being formed on the strength of repeated experiences. If a family visit proves to have scenes of this type time and time again, the individual forms a personal MOP. Scenes are relatively generalised and abstract, which allows information from the scenes to be used by different MOPs in different contexts. Thus, HUGGING or PRESENT GIVING could be parts of other MOPs, such as *leave-taking MOP* or *birthday MOP*. In other words, MOPs are dynamic in nature.

Another part of our knowledge is created by stories, which are stored in episodic memory but can also consist of generalised scenes. To use Lehnert & Ringle’s example, we can say that if a family visit ended in a row on just one occasion, the story is likely to be kept as a one-off event in episodic memory, but will still contain generalised scenes of HUGGING, PRESENT GIVING, FAMILY NEWS TELLING, DINNER, FAMILY FIGHT .

Schank (1982) developed the concept of MOPs as a flexible alternative to schemata. MOPs, as opposed to schemata, account for people’s ability to exchange knowledge between different knowledge structures.

Information sharing between different domains resulting in the process of forming analogies is one of the cornerstones of Schank’s theory of dynamic memory. One important feature of a MOP is crucial in this respect: “If one story led to retrieval of another story that was read earlier and shared the same MOP, then the two stories might be connected in memory, either directly or through the shared MOP” (Seifert et al. 1986).

Previously constructed MOPs are essential to the process of remembering: for instance Lehnert & Ringle suggest that the example above of a family visit can bring up in memory, through a MOP, a sequence such as the “diplomatic visit of a head of state who arrived happily but left threatening war” (2014: 486), even though there is no direct resemblance between the scenes.

Thus, the role of MOPs as “scene organisers” allows them to account for the fact that similar scenes can appear in different contexts and can be reorganised: information existing in memory is used to process new information. This point is particularly important because it is directly related to processing intertextual references.

If one story has scenes similar to another, a MOP connects the scenes from different cognitive domains, which leads to the retrieval of another story heard or read earlier. In other words “two stories or episodes can share common structures even though their contexts are unrelated” (Seifert et al. 1986: 222).

This can be further illustrated by considering two scenes from *Romeo and Juliet* and *West Side Story*: in *West Side Story* Anita tells the Jets that Chino has shot Maria, whilst in *Romeo and Juliet* Balthasar gives Romeo the news that Juliet has died. The similarity between both scenes - communicating wrong information - is drawn by a MOP and is based on information sharing between two cognitive domains – that of *West Side Story*, set in New York City in the 1950s, and *Romeo and Juliet*, set in medieval Verona. This is known as *cross-context mapping*.

One scene is not, of course, enough to retrieve a previous memory of the whole play, but the succession of equally similar scenes organised by MOPs with comparable participants, actions, goals and motives is likely to do so. As a result of the retrieval of the mental model of the play, it is mapped onto the model of *West Side Story*, and that assists in understanding the reference. As Schank puts it: “Understanding means mapping of your stories onto my stories” (1999: 91).

It is important to note that MOPs also account for dissimilarities. Describing MOPs as organisers of scenes, Schank argues that if a scene, or a sequence of scenes, is different from that contained in the MOP, it results in an “expectation failure” (Schank 1999), a realisation that the expected order or nature of the scenes is not observed.

Thus, when scenes from *Romeo and Juliet* are called up while watching *West Side Story*, the differences in setting and characters become apparent, causing an

“expectation failure”. As a result, the addressee seeks an explanation for differences between the scenes of the source and the target text, which leads to understanding of the intertextual reference. The process of finding explanations is often referred to in cognitive science as problem solving (see, for example, Kintsch 1992). Implied reference constitutes the “problem” in texts with intertextual references; understanding the reference by retrieving prior knowledge of the source text and drawing analogies via MOPs represents the “solution”.

Another set of high-order memory structures or “collections of memories” introduced by Schank is that of thematic organization points (TOPs) (Schank 1982: 113, 1999). According to Schank, TOPs are responsible for drawing analogies between events related by some common theme rather than by structural similarities of the event, scene or situation, as is the case with MOPs. This part of Schank’s theory is also very pertinent to the study of intertextuality because it explains the process of connecting in memory two stories with the same theme. (Schank 1982; Dyer 1983). Schank (1982) chooses the example of thematic similarity between *Romeo and Juliet* and *West Side Story* to argue for the existence of higher-order structures (TOPs) which capture this similarity and help us retrieve the source story from long-term memory based on commonality of themes across different domains. Schank argues that memory may have abstract structures that allow the reader to make cross-contextual connections between the two works. Among the patterns contributing to retrieving *Romeo and Juliet* from memory while watching *West Side story*, Schank lists:

1. young lovers
2. objections of parents
3. an attempt to get together surreptitiously
4. a false report of death
5. the false report causes a real death of one of the lovers (Schank 1999: 83).

Seifert et al. (1986) tested for such connections between stories using pairs of stories that shared the same theme. They came to the conclusion, later supported by the research of Beker et al. (2016), that instantiation of similar episodes based on themes does not necessarily always happen automatically; in their experiments it often needed some additional guidance or instructions. Such guidance is provided by what Schank calls indices:

The more information we are provided about a situation, the more places we can attach it to in memory and the more ways it can be compared to other cases in memory... These indices can be locations, beliefs, attitudes, quandaries, decisions and conclusions. And, the more indices, the greater the number of comparisons to the prior experiences...(Schank 1999: 90).

Understanding the process of forming analogies and information sharing between different domains is crucial for understanding how intertextual references are decoded by the readers.

4. Understanding intertextuality: Hard and soft modelling in texts

In the previous section I covered the main tenets of Schank's theory of dynamic memory as applied to understanding intertextuality. In this section I use Schank's theory to investigate the processes of comprehension of various types of intertextual references, suggesting that readers may be using different types of knowledge structure to decode different types of intertextual reference.

West Side Story and *Romeo and Juliet* provide very good material for exemplification of modelling relations between texts because of the clear parallelisms between both stories. Obviously, not all texts with intertextual references display such clear-cut cases of modelling. Texts can be modelled on other texts with varying degrees of closeness. It is, therefore, important to make a distinction between texts closely modelled on a source text (like *West Side Story* or Stoppard's *Rosencrantz and Guildenstern are Dead*) and texts that are more loosely modelled on the source text, allowing much more freedom of interpretation.

To highlight this distinction, I will use the terms *hard* and *soft models*. These terms are transdisciplinary borrowings from the area of systems analysis, and particularly from "soft systems methodology", developed by Peter Checkland (Checkland 1990; Checkland & Scholes 1991) and later used by other academics in organisational management. Systems methodology structures human activities such as problem-solving within organisations, businesses and information management. Problem-solving is an integral part of any human activity.

Text decoding has also more than once been approached from the point of view of problem-solving. Kintsch, who studied the process of text comprehension in think-aloud protocols while reading, noted that, during the reading process, readers were problem-solving, making inferences and retrieving appropriate knowledge (Kintsch 1992: 151). This kind of problem-solving is especially relevant to texts which demand an interpretative effort. Some authors specifically design their texts as riddles or

problems to be solved by readers. For instance, here is how Umberto Eco described his choice of the title *The Name of the Rose*:

The title rightly disoriented the reader, who was unable to choose just one interpretation; and even if he were to catch the possible nominalist readings of the concluding verse, he would come to them only at the end, having previously made God only knows what other choices. A title must muddle the reader's ideas, not regiment them.

(Eco 1986: 3)

Eco obviously saw writing a text as setting a problem for readers to solve, to interpret. Text interpretation, of course, cannot be regarded solely as problem-solving: that would be too restrictive. Some problem-solving activity, however, often forms part of text interpretation.

Next I will use Schank's dynamic memory theory to see how the reader solves problems of understanding different intertextual references. I will argue that the process of understanding depends on what kind of intertextual reference is "engineered" by the author of the text: whether the text is a hard or a soft model of the source text or whether it has only a loose association with it.

4.1 Intertextual references – hard models of the source text

Hard modelled relations between the source and the text can be exemplified by the references to Shakespeare's *Hamlet* in Tom Stoppard's *Rosencrantz and Guildenstern are Dead*. In Stoppard's play there is an almost complete one-to-one correspondence of participants and actions, which constitutes the skeleton of structural similarities between the play and its modern successor. The participants in both texts are Hamlet, Claudius, Gertrude, Ophelia, Polonius, Rosencrantz, Guildenstern, Fortinbras, Horatio, Ambassador, and the Players. Most of the actions coincide in both texts; entire extracts from Shakespeare's *Hamlet* are even integrated into Stoppard's script. From a cognitive point of view, similarity between scenes in the two plays is captured by MOPs which make a connection between scenes even if these scenes appear in different contexts or domains. These resemblances from different domains are mapped onto each other, which allows us to decode each intertextual reference.

Moreover, the number of structural similarities retrieved from long-term memory and captured by MOPs directs and shapes interpretation of Stoppard's play, restricting it in the sense that it can only be interpreted in conjunction with the source text. The characters and actions of the *dramatis personae* can only be seen as counterparts of those in the source text. The source text serves as a point of departure for understanding and interpretation. For Schank understanding is finding the right match

between what is being processed and what was previously processed and is stored in high-level memory structures (1986, 1999).

The closeness of the scenes captured by MOPs creates a background against which the differences between them are more prominent: this is the effect of foregrounding through defamiliarisation. The well-known plot of Shakespeare's play is defamiliarised by being seen from the point of view of the two attendant lords, Rosencrantz and Guildenstern. Their importance in the play, however, acquires special significance when juxtaposed with the fact that in *Hamlet* they are a pair of quite unimportant characters. In Stoppard's play Rosencrantz and Guildenstern are puzzled innocents unable to make sense of what is going on. This theme in the play is foregrounded by the fact that, in contrast, Shakespeare's Rosencrantz and Guildenstern are shrewd, double-dealing courtiers. There are other examples. Stoppard's treatment of the pair is compassionate, not scornful, as in the source text. Stoppard's Rosencrantz and Guildenstern exist in temporal opposition between Elizabethan England and the present day, expressed in the language used by the characters, as well as, more generally, in the opposition between prose and poetry.

Thus, deviant features of language and narrative structure are made especially prominent in contrast to Shakespeare's original. From a cognitive point of view, these foregrounded differences create a problem to be solved by the reader, or, in Schank's terms, an "expectations failure". The reader attempts to figure out the discrepancies and to make sense of these "failures" by creating explanations. Schank (1999) suggests the "failure-driven reminding algorithm" which includes, among others, such steps as failures, explaining them, and creating an alternative account, which then provides the interpretation of the intertextual reference. In the case of *Rosencrantz and Guildenstern are Dead* an explanation has to be found for the irrational actions of characters, random events and ideas, the jumbling of time and space. These characteristics can be explained if the TOP of absurdist (rather than Renaissance) drama is applied when reading the play. However, not every reader may have this mental model and this explanation may not be successful; then the reader may provide a different explanation.

The structural similarity of scenes is supported by cross-context thematic similarity allowing connections between more general and abstract themes captured by TOPs. Themes common to both plays can be identified as *death, fate, betrayal*. It is interesting to note, however, that these themes on their own are not sufficient to instantiate a memory of TOPs. To recognise similarities and to instantiate knowledge of *Hamlet* while reading *Rosencrantz and Guildenstern are Dead* some indices are needed, or, as Schank puts it: "...if you want to influence people's thinking indirectly, give them a situation that can be characterized by a TOP, and a possible index to that

TOP. People will use index to find memory” (1999: 85). Indices are provided, for example, by the names of characters, place names, scenes and fragments of situation models shared by both plays. Here, recovering intertextual reference relies on both MOPs and TOPs and with so many indices pointing to the source play, the problem-solving task does not present any significant difficulty, provided that the reader has prior knowledge of Shakespeare’s play. The text and its source are deliberately closely paralleled so that interpretation of the text is tied to interpretation of the intertextual references: Stoppard wants his audience to have *Hamlet* as a backdrop to his play. In hard modelled texts the author to a certain extent predetermines the reader’s response.

The ultimate case of hard modelling would have been, if it had ever existed, the text described in a short story by Borges, “Pierre Menard, Author of the Quixote”. This short story describes an eccentric literary undertaking – a *Don Quixote* written for the second time by another author, Pierre Menard:

He did not want to compose another Quixote - which is easy - but *the Quixote itself*. Needless to say, he never contemplated a mechanical transcription of the original; he did not propose to copy it. His admirable intention was to produce a few pages which would coincide - word for word and line for line – with those of Miguel de Cervantes. (Borges 1998: 91; italics original)

Of course, in literature this kind of hard modelling is pointless. Texts with intertextual references usually display varying degrees of correspondence between the situation model of the text and an intertextual reference. As a result, they are more or less likely to be instantiated from memory and linked together in a MOP, but analogies between these texts are drawn on a higher level – on the level of TOPs. It could be hypothesised that in the case of soft modelling, to which I turn next, TOPs are mainly involved in interpreting intertextual references, but occasional elements of MOPs and indices also facilitate recognition and retrieval.

4.2 Intertextual references – soft models of the source text

Soft models also follow the source text, but to a lesser degree. These texts do not have consistent structural similarities: only a smaller number of themes or indices are recognisable. The similarities between such texts can be viewed in terms of TOPs which represent a generalised theme of a whole sequence of episodes. Thus, texts with intertextual references that are soft models of the source texts allow a wider range of interpretations because the similarity lies on a higher level – on the level of themes (TOPs).

Soft modelling relations between texts can be exemplified by the poem “Hamlet”
by Boris Pasternak:

Hamlet

The murmurs ebb; onto the stage I enter.
I am trying, standing in the door,
To discover in the distant echoes
What the coming years may hold in store.

The nocturnal darkness with a thousand
Binoculars is focused onto me,
Take away this cup, O Abba, Father,
Everything is possible to thee.

I am fond of this thy stubborn project,
And to play my part I am content.
But another drama is in progress,
And, this once, O let me be exempt.

But the plan of action is determined,
And the end irrevocably sealed.
I am alone; all round me drowns in falsehood:

Life is not a walk across a field.

Translated by Lydia Pasternak Slater

The title of the poem contains an unequivocal reference to Shakespeare’s play. In cognitive terms this is an index facilitating the retrieval of the source text from long-term memory.

The poem itself cannot be said to reproduce the structure of the source text in any way. The play is, however, definitely referred to in the poem. The poetic *persona* of Pasternak’s poem is an actor who lingers in the wings before appearing on the stage in front of a hostile audience, doubting his ability to play this challenging role. The reference invokes the doubts and hesitancy Hamlet had in fulfilling the role of avenger imposed on him in the hostile atmosphere of Elsinore. These feelings are also close to those of Yuri Zhivago caught in the turmoil of the Russian revolution: the poem is presented as if written by Yuri Zhivago and placed together with other “Poems by Yuri Zhivago” in an appendix to Pasternak’s famous novel *Doctor Zhivago*. Reading the poem as part of the novel will provide an extralinguistic index which will facilitate retrieval of this intertextual layer. The poem’s appearance in a separate collection of Pasternak’s poetry would make it more difficult for the reader to make the connection to “Doctor Zhivago”, relying only on TOPs.

These themes are powerfully reinforced by an allusion to Christ’s moment of doubt before crucifixion. It is explicitly pointed to by an almost verbatim quotation from the Bible: *Take away this cup, O Abba, Father* which acts as an index to the retrieval

of the theme of *doubt before a challenging task*, even though the contexts in which this theme appears in the text and its source are markedly different.

Apart from references to these two texts, the poem is also closely connected to the personal experience of Pasternak who was suffering at this time from the hostility of the press, publishers and the cultural establishment in general. This reference is extratextual and there are no in-text indices to guide the reader: retrieval of this reference relies completely on TOPs and on the reader having sufficient background knowledge about Pasternak's life.

Thus, the thematic points providing connections between the four planes of this poem are:

- Loneliness in a hostile environment
- Doubts before fulfilling a challenging task/ playing a designated role
- Fate or the inevitability of the course of events

These TOPs connect the actor in the poem to all three intertextual, and one extratextual, references: Yuri Zhivago in the novel, Hamlet in the play, Christ in the Bible, and Pasternak in real life.

The difference between this poem (and many other poems) and a plot-based narrative is that it deals with ideas rather than actions and plots. Schank & Abelson acknowledged the difficulty in "reminding" and understanding texts based on ideas (a novel without a plot as opposed to a mystery novel): "the primary mechanism ... to guide understanding, namely reminding, must work especially hard on rather scanty evidence to find something to get reminded of. The main fodder for reminding in such circumstances comes from beliefs that have been extracted from a text" (Schank & Abelson 1995: 22). These beliefs and ideas are organised by TOPs.

To sum up, the difference between soft and hard intertextual models can be presented as follows. In hard models of other texts intertextual references are decoded by mapping the structure of the situation, event or scene (characters and relationships between them) of the source text onto the target text whose situations, events or scenes have an analogical structure. This mapping can be thought of in terms of MOPs as "organisers of scenes" (Schank 1999) which provide cross-contextual connections between scenes and as a result allow the reader to interpret the intertextual reference. Hard modelling relationships between the source and the target text mean that a situation from the source is reproduced with such a degree of fidelity that recognition occurs. In terms of cognitive structure the scenes from the source text are instantiated and connected to the target text, and thus an intertextual reference is understood by the reader. Such similarities can be accompanied by commonality of themes (TOPs). Thus, in decoding hard modelled intertextual reference, both MOPs and TOPs play a

role, but MOPs play a more significant part in recognition and retrieval of the structural similarities. Soft models, on the other hand, offer a greater potential for variation, but this variation is still based on recognition of the similar themes in the source and the target text. Thus in soft models the predominant role in source recognition is played by TOPs; occasionally similarity of some elements of scenes can be established by MOPs.

4.3 Intertextual references – loose associations with the source text

TOPs are a useful instrument in explaining analogies based on very tentative linguistic clues. Consider the following example from Eugene O’Neill’s *The Long Voyage Home*:

DRISCOL: . . . A foine Romeo you’d make in your condishun.
(O’Neill 1988: 513)

In this case there are no modelling relations between the text and the source; the connection between the texts is very loose, free and unrestricted. Recognition is based on an extremely generalised and decontextualized theme commonly associated with Romeo: *Romeo = romantic lover*. The name of the character has become more than just a name; it is a theme. This TOP on its own establishes a connection between apparently unconnected texts.

Consider another intertextual reference to *Hamlet*, in Pushkin’s *Eugene Onegin* (translated by Babette Deutsch):

At home again, young Lensky duly
Beheld the bed where all must lie,
And by those ashes, mourning truly,
Paid them the tribute of a sigh.
'Alas, poor Yorick!' he lamented . . .

This reference to Shakespeare’s play is open to various interpretations. There is the superficial explanation of “Alas, poor Yorick!” as a vague similarity of situations – a young man in a cemetery near the grave of a person he knew in childhood. There is also Lotman’s (1997: 426) insightful comment: Lensky, being a romantic poet, sees himself as Hamlet and re-codes the situation at the cemetery in terms of Shakespeare’s tragedy. This is despite the fact that there is little in common between Lensky and Hamlet except this one moment of grief in a graveyard. The key connection here relies on understanding *Hamlet* as a cultural icon and part of a shared cultural heritage carrying a wealth of intrinsic meanings. In the context of 19th/ 20th century Russian literature, the figure of Hamlet acquires a symbolic meaning; literary criticism describes this phenomenon as “Russian Hamlet” and even coined the term

Hamletism (see, for example, Rowe 1976; Sukhanova 2004; Baer 2010; Zakharov 2015). Such an understanding of Hamlet can be seen as a high-level generalised knowledge structure, in other words, a TOP.

The intertextual reference here is nothing more than a loose association between the texts based exclusively on thematic similarity: it is not based on recognisable structural connections between texts which would allow them to be recognised as similar and connected in a MOP.

Another example of so-called Hamletism is the love poem “Reading Hamlet” written by Anna Akhmatova (translation by Andrey Kneller):

Reading Hamlet

I

The graveyard, wasteland, then the shore,
Where the river shines cool and blue.
You told me: “Get thee to a nunnery or
Find a fool to marry you...”
That’s the sort of thing princes say, I know,
But I’ll never forget this one, –
Like an ermine mantle let your words shine and flow
For many years, and on, and on.

II

As if by mistake, beguiled,
I used the familiar “You...”
A flashing shadow of a smile
Lit up your face anew.
When one blunders so absurdly,
Gazes will alight...
Still I love you, like some forty
Tender sisters might.

1909 Kiev

Two lines, one in each part of the poem (“Get thee to a nunnery or/ Find a fool to marry you...” and “I love you, like some forty/ Tender sisters”), are in effect quotations from Shakespeare’s *Hamlet* (“Get thee to a nunnery, go: farewell. Or, if thou wilt needs marry, marry a fool”; and “I lov’d Ophelia; forty thousand brothers / Could not, with all their quantity of love”, *Hamlet* v.i.262-4).

Reminding here relies on quotation: “individual words, while not themselves stories, do serve to index stories” (Schank & Abelson 1995: 12). Not every word or number, according to the authors, can index a story, but the ones used in this poem are recognisable, or “story-relevant”: *nunnery*, *marry*, *a fool*, *graveyard*, *river*, *prince*, *ermine mantle* particularly in conjunction with each other, serve as indices to the play. Use of *sister* also supports this indexing cluster because, though not the same word, it is still from a very close semantic field of kinship and the switch of *brother* to *sister* can be explained by the gender of the addresser. The number *forty* is also

recognizable and meaningful because it is “story-related” in the same way as *forty-two* is meaningful and “story-related” in Douglas Adams’ *The Hitchhiker’s Guide to the Galaxy* (2009).

These are the only references to Shakespeare in the poem, apart from an explicit reference to *Hamlet* in the title. Even though they are almost exact quotations from the play, these words are indices creating a starting point for a process of free thematic association triggered by the poem which has little in common with Shakespeare’s play. Without the background of a recognisable model, interpretation is free and unrestricted. There are many ways in which the creative reader can establish links between Akhmatova’s poem and *Hamlet*. But all of them will be to a great extent arbitrary, guided, but not restrained, by the source text. From these tentative correspondences between poem and play, different readers can form different TOPs, or thematic associations, with different interpretations. Thus, the references can be interpreted

- as a simile to convey the strong feelings of the *poetic persona*. This is a deeply personal reference to Akhmatova’s stormy relationship with Nikolai Gumilev, another poet who later became her first husband. Ophelia committed suicide and Gumilev attempted suicide for the second time a year before the poem was written. In another poem written in the same year as “Reading Hamlet”, Akhmatova expressed her fear that eventually one of his attempts on his life would succeed. This reading can be supported by another poem, “By the Sea Shore”, written at the same time, where a young prince (*tsarevich*) drowns in the sea: compare *tsarevich* from “By the Sea Shore” with *prince* in this poem.
- as testimony of her unwillingness to treat Gumilev as other than a friend, a ‘brother’ (thus, “I love you as forty tender sisters”).
- as a reversal of gender roles to reflect a reversal of roles between Ophelia and Hamlet (“I loved Ophelia, forty thousand brothers/ Could not with all their quantity of love. . . “ (*Hamlet* v.i.262-4); “I love you as forty tender sisters”)
- as simply a recollection of lovers reading *Hamlet* together.

This poem, like many others, is based on Akhmatova’s private emotional experiences. The poet does not give the reader easy clues to the actual events in her life. Her biographer, Amanda Haight, writes: “Although the average reader of Akhmatova’s poems considered every one of them to be tantamount to an intimate confession . . . she still succeeded in keeping her private life very much to herself” (Haight 1990: 29).

The association of Akhmatova’s poem and Shakespeare’s *Hamlet* is relatively loose, fuzzy and open. It allows considerable variation in interpretation so that readers may develop their own understanding of the poem, involving their own prior knowledge and experience. Each reader’s explanations of the reference to *Hamlet*, therefore, depends on what themes from the poem will be attuned to the reader’s personal experiences and ideas. This is in keeping with Schank’s distinguishing between social, taught TOPs and idiosyncratic, personally constructed TOPs (Schank 1999). In

attempting to find explanations for intertextual references, the reader draws on TOPs, which, according to Schank, offer solutions to the problems posed. In texts with loose associations, the problems presented by such tentative intertextual references have several answers; explanation relies to a large extent on the idiosyncratic experiences of the reader. In this sense, any fictional text is, in Eco's words, "a machine for generating interpretations" (Eco 1986). These interpretations, however, are not completely arbitrary. The direction of interpretation is indicated by the explicit reference (in the title) to *Hamlet* which brings about a range of meanings connected with the play on the one hand and with Akhmatova's personal emotions on the other, out of which the reader is free to make individual, subjective choices.

As a final example of a reference to *Hamlet*, consider T.S. Eliot's "The Love Song of J. Alfred Prufrock":

No! I am not Prince Hamlet, nor was meant to be;
Am an attendant lord, one that will do
To swell a progress, start a scene or two,
Advise the prince; no doubt, an easy tool,
Deferential, glad to be of use,
Politic, cautious, and meticulous;
Full of high sentence, but a bit obtuse;
At times, indeed, almost ridiculous -
Almost, at times, the Fool.

Noticeably, the associations evoked by this poem are even weaker than in Pasternak's poem, and they are quite different from those invoked by Pasternak's allusion to *Hamlet*. Eliot allows readers to try various interpretations of the text; there is no model to constrain the reader's interpretative endeavour. Once again the correspondence between the source text and Eliot's poem relies on an index, "Prince Hamlet", supported by an "attendant lord" who is not even named but can be assumed to be Polonius. This is a very loose association where ambiguities in meaning may lead to multiple explanations. The reader, for example, may be uncertain as to whether the author means Polonius, Rosencrantz, or Guildenstern to be the "attendant lord". Similarly, ambiguity exists as to the potential referent of "Fool" because several characters in the play are referred to as "fool": Polonius refers to himself and to Hamlet as a "fool"; Hamlet refers to Polonius as a "fool" twice – notably when he kills Polonius ("intruding fool"); he also calls Rosencrantz and Guildenstern "These tedious old fools". "Fool" may even refer to Yorick, despite the fact that the word "jester" rather than "fool" is used in the play.

There are other features that may or may not be perceived as similar. Is there a connection between the ghost of Hamlet's father and the epigraph spoken by the ghost of Dante's Guido da Montfelfro in *La Divina Commedia*? Is Prufrock's "overwhelming question" linked to Hamlet's question "To be or not to be?" Is Prufrock's "Do I dare?" a reflection of Hamlet's indecision? Finally, is Prufrock's "And in short, I was afraid" resonant with Hamlet's "... am I a coward?" (II.ii.574) or is it just a

coincidental similarity? One might also see a connection between “sea-girls wreathed with seaweed red and brown” and Ophelia’s drowning, as indeed one might connect it to the final “we drown” in *Prufrock*.

All of these interpretations are quite possible and have been suggested by some critics and rejected by others. This divergence of interpretations is unsurprising, considering that there are relatively few indices. There are no similar scenes or MOPs. TOPs, such as *Hamlet*, provide only a very broad direction of interpretation and allow wide variation of possible readings: TOPs “are not static memory representations of abstract prototypical categories, but are processing capabilities that allow readers to be creative in their understandings of events, such as those encountered in literary texts” (Gibbs 2005: 203). Analogies here are drawn solely on the thematic level (TOP), which may explain the fact that texts having loose associations with other texts are open to multiple interpretations.

The examples of references to *Hamlet* in *Rosencrantz and Guildenstern are Dead*, *Hamlet*, “Reading Hamlet”, “The Love Song of J. Alfred Prufrock” and *Eugene Onegin* are all cases of intertextual relations: loose association and modelling, soft and hard. Texts based on hard modelling of the source text (as in Stoppard’s play) tend towards “closed texts”, to use Eco’s (1979) term. Based on structural similarity, the representations of both text and intertextual reference form part of a MOP. Open texts – such as Akhmatova’s poem – “actively involve the reader in their production” (Eco 1979: 10). The similarity between these texts is thematic and is organised by TOPs.

Thus, to sum up, the texts with intertextual references to *Hamlet* discussed in this paper can be represented on a continuum between loose association and hard modelling, as in Figure 1. Needless to say, as was shown in the examples analysed, there is no clear divide between these types, and texts with intertextual references can be seen as placed on a spectrum between hard models and free associations.

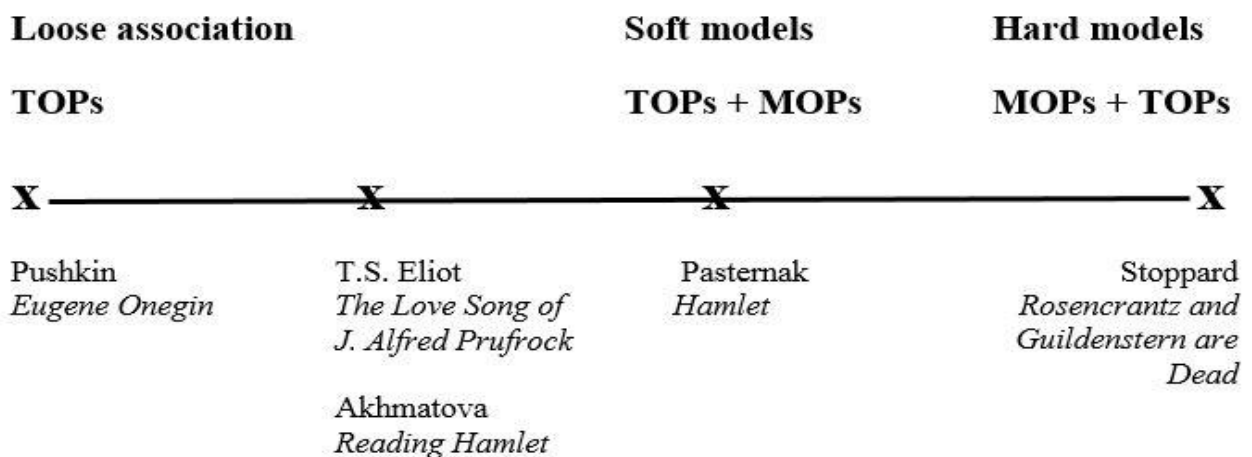


Figure 1. A continuum of intertextual references to *Hamlet*

5. Conclusions

This paper suggests that a modelling approach can be used to describe the remarkable diversity of intertextual references. The distinction between modelled (hard and soft) and non-modelled references (free associations) on the one hand reflects the nature of intertextual references, and, on the other, highlights differences in reader responses to different types of intertextuality. The reader's interpretative freedom varies from more restricted in hard models to less restricted in loose associations.

The distinction between hard models, soft models and loose associations also reflects the different pathways for decoding intertextual references. Texts which are hard models of the source texts reproduce structural components – scenes from the source text. Thus, it is logical to suggest that the process of drawing analogies between texts relies primarily on MOPs. In soft model texts recognition and analogies mainly rely on commonality of themes and are organised by TOPs; this may be supported by some elements of scripts and scenes of the source text. Finally, references, or loose associations, are based on thematic echoes that can be quite distant; thus, in many cases the readers' understanding needs to be guided by indices. In this way, adopting a cognitive perspective clarifies the ways intertextual references are understood and decoded.

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