Memorability in Narration: An Overview of Mnemonic Features in Oral and Written Tradition

Įsimintinumas pasakojime: mnemoninių priemonių žodinėje ir rašytinėje tradicijoje apžvalga

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Memorability in Narration: An Overview of Mnemonic Features in Oral and Written Tradition

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How does narration effect memory? This comprehensive paper investigates memorability in narratology, especially in oral tradition, and how mnemonic features helped generations remember long epic stories, followed by how the invention of writing forwent and changed some mnemonic features while other features remained. The effects of discourse and theme elements on human memory will also be investigated. Several facets of memory will be explored, including leading theories on how memories are formed physiologically in the brain, how oral stories have been remembered and transmitted through long spans of time by visiting the scholarship of oral traditions, and the effect of writing on narration will also be briefly examined to better understand which features remain from oral tradition and which features have been forgone. Finally, the investigation of narrative elements in the oral tradition and writing will be used to illuminate what features make narration memorable. Modern narrative theories will also be discussed briefly to compare what features overlap with oral tradition. Primarily, the aim will be to understand the ways in which narratives enact on long-term memory based on salient, emotive, and relatable attributes.

KEYWORDS: mnemonics, memory systems, narration, narratology, oral tradition, oral communication, narrative codes.

Introduction

Stories can stir and rivet our emotions like few other forms of communication can. They elicit our emotions by making the reader or listener feel connected to characters as they traverse through the ups and downs of their unfolding drama. Stories are also known to be more memorable than raw facts and information. As a relatively modern example, most people today remember vivid *details* of the Titanic. This is likely not due to remembering from history class the extraordinary civilian maritime disaster of the largest ship to exist in 1912. Rather, salient details are most likely remembered because director James Cameron was able to masterfully weave a fictional tale into the events that occurred (notwithstanding the tremendous budget) and deliver the story in a much more relatable and meaningful way than historical accounts of the event ever could. The veracity of the story was not important for the makers nor viewers of

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the film, however what the movie could do was relay the most important pieces of information in a dramatic and eye-catching way that made it one of the most memorable films of all time. Of course, this is not only hallmark of movies or films. Written form stories can achieve this effect as well, whether based on history (e.g. *A Tale of Two Cities* by Charles Dickens) or autobiographical (e.g. *The Diary of a Young Girl* by Anne Frank).

Then there is pure fiction—with no constraints such as the historical facts to get in the way of telling a captivating story, an author is only limited by his imagination of what he can incorporate to produce a meaningful and memorable experience for the receiver. Interestingly, there may be something to fiction in of the notion itself that causes recipients to remember more. In what has been dubbed the *fiction superiority effect*, it was shown in a series of experiments that readers or listeners recalled 20–50 % words and details when a story was labeled fiction versus when the same exact story was labeled non-fiction (Hendersen & Clark, 2007). It is theorized from these experiments that recipients of a story encode the information (or mentally construct) differently depending on whether it is labeled fiction or nonfiction. Fiction seems to allow more leeway for details to be imagined. For example, when readers of fiction are told *It was a cloudy day*, they may wonder (consciously or subconsciously) why the author thought mentioning this particular weather pattern was informative or relevant. Perhaps the author included it to set the mood, or maybe it is a foreshadowing of worsening weather conditions such as a rainstorm. Whereas the setting of *a cloudy day* in nonfiction is a simple matter-of-fact retelling which may or may not have relevance to the overall story. Fiction readers are thought to be constantly and subconsciously searching for the underlying connections of mentioned facts of the narrative. If this theory is true, then it would appear that the process of fiction-reading (that is, reading as a fiction, as oppose to *reading fiction* itself) involves the reader to cognitively interact more with the story than nonfiction-reading. This active interaction with the narrative is what is suspected to be the cause of readers remembering a story more compared to reading the same story as a non-fiction. This *fiction superiority effect* begs the question of how fictional stories can make us remember more. It is exactly this kind of interactive and dynamic mental processing that we will try to get a closer look at in this review and how it may affect memorization. We will also investigate what features of real fictional stories (as opposed to labeling a story fictional) may afford better memorization. The primary aim of this paper is to understand how narratives are able make information memorable through the use of narrative tools and the themes that underlie them.

The first is point we will examine is the phenomenology of memorable experiences and how this is encoded in the brain. Furthermore, we will see how experiences can occur vicariously through stories and how conspicuous features of storytelling have been used since long before the advent of writing. The emergence of writing will then be examined briefly, followed by a discussion of narrative features that remain in modern times which afford memorization. Finally, modern narratology theories will be explored to see what overlaps with mnemonic features discovered in oral tradition. The aim will be to understand the ways in which narratives enact on long term memory based on salient, emotive, and relatable attributes. This overview may also serve to give some insight and serve as a platform for further investigations.

A Primer on the Basis of Memory

It goes without saying that humans cannot do much without memory. Without it, we would be automatonic, instinct-driven animals without any possibility of culture, cumulative knowledge, or the least of these, language. Even with only short-term memories, the human psyche would likely be relegated to that of small mammals, living in the moment as do infants before long-term memories gradually and eventually develop during adolescence.

Having the ability of storing memories long-term may be one of the biggest attributes that distinguish humans from other animals. Since human progress is reliant on the accumulation of important memories, we have generally become good at finding ways to store it, initially and prior to the advent of writing, by the utilization of mnemonic systems (e.g. rhyme, song, aphorisms, etc.). Later, writing would become a very powerful extension of the human mind, enabling the thoughts of an individual to be permanently recorded with little to no error of transmission (although translation and interpretation still have considerable issues).

Before going on further to explain the origin of narrative memory systems, let us first glance at the basis and process of how memory works. It is important to understand how memories work before looking into how narration exploits these memory systems. This will hopefully illumine our understanding of mnemonic systems and narrative qualities that make a text memorable.

1. Types of Memory

Memory is typically classified into three types, sensory memory, working memory (also known as short-term memory), and long-term memory. The two main divisions of sensory memory, based on our strongest senses are iconic (visual) and echoic (auditory) memory. Iconic memory lasts roughly half a second while echoic memory lasts 3–4 seconds (Radvansky, 2017). Working memory, on the other hand, is defined by the quantity of information rather than time. This has been measured, and famously reported by George A. Miller, that humans have an average capacity of remembering units of seven, minus or plus two (1956). This dubbed *magic number* capacity, along with temporal decay, which makes us incapable of surpassing the magic number, is what is usually drawn as parameters for working memory. Working memory is also broken down to the processes of the two sense categories of sensory memory: visual processing and audio processing. To process visual information, the Baddeley and Hitch model (1974) calls our working memory's capability to represent the information as the visuospatial sketchpad – our mind's ability to visually represent what was just seen or heard. This type of short-term visual memory is the same process that is used when recalling any given visual memory from long-term memory. To process audio information, such as words or numbers, the Baddeley and Hitch model (1974) also describe what is referred to as the phonological loop. Basically, just as the visual counterpart is the mind's inner sketchpad, the phonological loops work as the mind's inner ear and rehearses the sounds it just heard so to keep it in working memory after the sensory echoic memory of 3–4 seconds passes (See Diagram 1, below).

To process both visual and auditory input, the Baddeley-Hitch model describe what is referred to as a *central executive*, which coordinates visual and audio information to create an integrated representation, known as the episodic buffer, a component of working memory which was added later to the model (Baddeley, 2000).

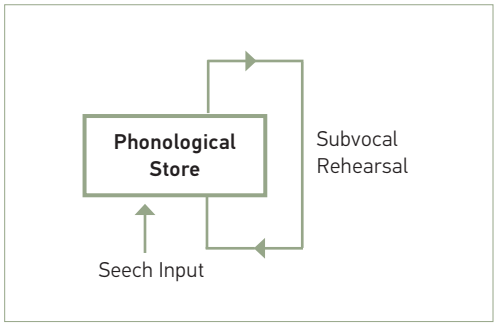


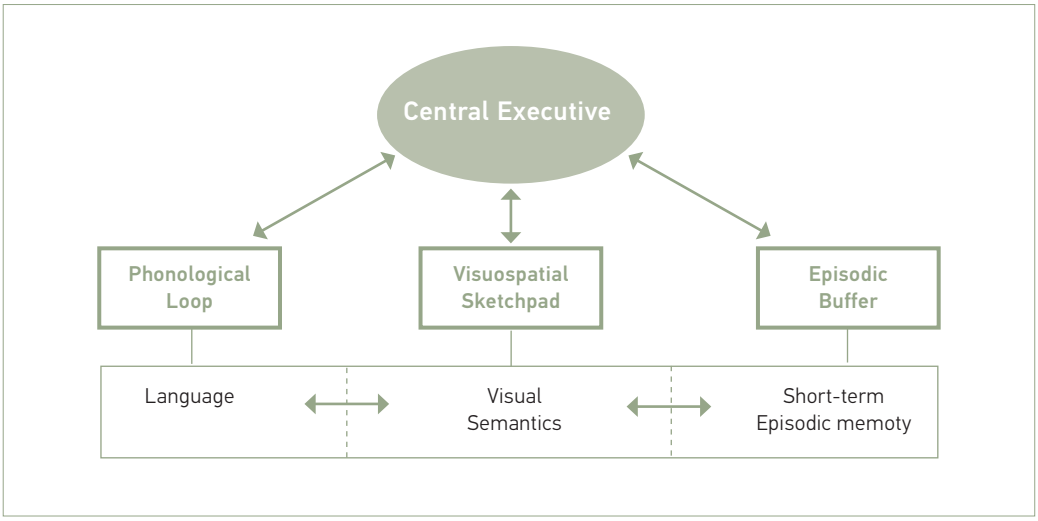
Diagram 1
The Phonological loop consists of rehearsal to prevent decay (Baddeley, 1986)

Episodic refers to a scene, or episode, that is visually created from hearing a sentence or other string of auditory information of indeterminate length. *Buffer* refers to the mind's ability to hold on to this episodic information. It is important to stress that the visuospatial sketchpad works in tandem with the phonological loop, allowing the words and sentences one hears to create the images in the mind. This is

why we can remember a scene or story without remembering it verbatim, or even without remembering a single line of a story. And our working memory's ability to hold on to this information is vital to allow a series of episodes to flow together so that a story can unfold and be remembered coherently. (See Diagram 2 below for Baddeley and Hitch's updated model).

Diagram 2

Baddeley's model (revised 2000) shows the interaction of the central executive's slave systems



But the stories one hears are often forgotten due to the brain's temporary nature of working memory. The short duration limit is surpassed through the encoding of working memory to long-term memory (LTM). This can happen in several ways, through repeated exposure (such as rote rehearsal), mnemonic devices (e.g. Imagery, peg-words, method of loci, acronyms, etc.), or personal pertinence (i.e. when new information relates to someone personally the brain is more likely to encode it to LTM).

Another method is *chunking,* which is a natural phenomenon of language but also can be used as a purposeful mnemonic strategy of grouping information bits together. For example, every time we hear a phone number, we hear the digits, but unless we repeat it to ourselves (either out loud or silently) we will quickly forget it. To enhance this STM process, most people are inclined to break up a phone number into chunks to make it easier to recall. It is reasonable that forty three – ninety five – double zero – twenty is easier to remember than the same number in a series of single digits. So while humans might be constrained to seven or so units to remember, chunking is a common strategy that has been developed to surpass that limit since a unit can consist of chunks of information that is almost infinite. Chunking goes beyond remembering numbers. Including examples of chunking as natural phenomena are: when one learns new words, concepts are often categorized linguistically (e.g. *Dairy* for cheese, yoghurt, milk, etc.), syntactically (e.g. prepositional phrases, verbal phrases, and other sentence structure patterns), and phonologically (e.g. prosodic constituency or phase structure).

2. Emotion's Role on the Physiology of Memory

The physiological interaction and relationship between short-term and long-term memory, although it is not entirely clear and agreed upon, it is agreed that short-term memory acts as the proverbial gatekeeper via the hippocampus to long-term memory. It is through the passage of time and thereby the reduction of competing surrounding stimuli that allows memories to stabilized and traverse to a permanent store (Preston, 2007).

Although there is much still be discovered scientifically about the brain, there are a lot of things that are known or at least can be intelligently inferred from past studies. The scientific study of the brain specific to memories arguably started in the 1920s when behavioral psychologist Karl Lashley attempted to find the location of where memories were stored. He did this by putting lesions on various areas of the brain of rats to see if they could find their way through a maze (Josselyn, 2010). His result: any place the lesions were placed, the rats had no trouble solving the maze-task. This led Lashley to conclude that there was no, what he called *engram*, or original memory trace, in the brain. Instead, he theorized that memories were diffused throughout the brain.

However, later works found that the hippocampus, the small seahorse shaped component of the inner brain, plays a vital role for episodic and autobiographical memories. One important work for this discovery was through an epilepsy patient named H.M. who had his hippocampi bilaterally removed and suffered heavy anterograde and temporary retrograde amnesia (Neylan, 2000; Smith & Kosslyn, 2007). Without both hippocampi, long-term memories could not be stored and therefore could not record any new memories or functions, as was the case with H.M. The prefrontal cortex appears to play a pivotal role as well, which is also known to have a large role in decision making, personality expression, and social behavior (also believed to be where working memory is mostly processed). When memories are encoded from the prefrontal cortex to the hippocampus, they are then slowly transferred out to the neocortex, and also back to the prefrontal cortex for storage. As one leading theory posits, using a train metaphor, he states:

> *...the hippocampus is responsible for laying down new tracks, whereas the prefrontal cortex is responsible for flexibly switching between tracks* (Miller & Cohen, 2001).

Meaning, the prefrontal cortex gathers features of related memories together which compose *the context* of a set of connected experiences to be sent to the hippocampus (Preston & Eichenbaum, 2013). So in other words, the prefrontal cortex apparently decides which information to keep and send to the hippocampus for consolidation which is then diffused to the neocortical networks. These networks that form in the neocortex are theorized to not just be memory traces, but form what is called *schema*, which are described as "*structured* mental representations embodied as organizations of related associations" (Piaget, 1929, as cited in Preston & Eichenbaum, 2013).

What is of interest here is the relationship between the prefrontal cortex and the hippocampus for creating LTM. Because the hippocampus is a vital component to long-term potentiation (the strengthening of synapses between neurons) and because the prefrontal cortex ultimately decides on what information is important to store into long-term memory, any new information learned must first be interesting enough to grab the attention of the learner. Thereby the prefrontal cortex (in charge of working memory) sends the temporarily memorized information to the hippocampus, which helps to eventually strengthen LTM of the information.

The hippocampus also works together with another important part of the brain – the amygdala (See Diagram 3 for its location). As Smith and Squire's (2009) experiment has shown, among others (Maren, 1999, Blair et al., 2001, Phelps, 2004), the amygdala also

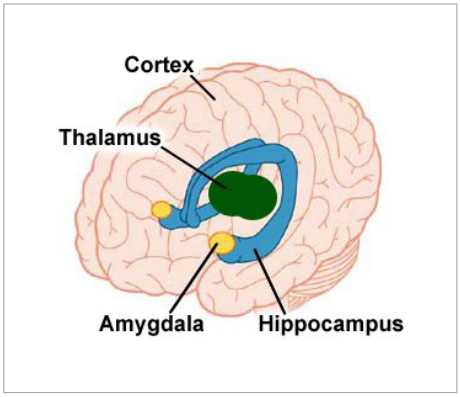


Diagram 3

Location of the Hippocampus and Amygdala (Fehlha-ber, 2013)

plays an extremely important role in memorization. The amygdala, which sits, next to the hippocampus, is responsible for emotional regulation and it also plays a vital role for memory consolidation. The fact that in fMRI studies the amygdala shows activity in concert with the hippocampus when emotion meets memory has given scientists good reason to believe that, while responsible for two separate memory systems, they often interact (Phelps, 2004) and may even be bi-directional (Richardson et al., 2004).

The important aspect about the physiology to note here is that components of the brain that regulate emotions and those that regulate memories are inextricably linked. However, whether emotions contribute a positive or negative feedback to memory has been of some debate. Although there is a plethora of research concerning the effect of emotional arousal on memory that supports both impairment and enhancement, Mather & Sutherland (2011) outline a new and compelling theory called the *arousal-biased competition* (or ABC). The ABC theory states that arousal modulates ongoing competition between mental representations in the brain dependent on top-down (or subjective importance) or bottom-up (perceptual salience). As an illustration of this interaction, when participants in two separate studies were asked to memorize a list of neutral words before watching an arousal or non-arousal video, those who watched the arousal video afterwards remembered more of the words because of the high priority the participants gave the list of words (Nielson & Powless, 2007; Nielson, Yee, & Erickson, 2005, cited by Mather & Sutherland, 2011). Arousal stimuli seems to have made otherwise uninteresting words more memorable. Interestingly, however, when participants were given emotional and neutral words before an arousal video, only the emotional words were recalled (Mather & Sutherland, 2011). It is thought that the neutral words lost the competition to emotional words and thus received no benefit from the subsequent arousal inducing video. Another way that a negative effect can manifest was shown in studies which showed an actual impairment of memorization (which they call *retrograde impairment*) via arousal stimuli (e.g., Detterman & Ellis, 1972; Strange et al., 2003, as cited in Mather & Sutherland, 2011). The experiment design, however, appears to be behind the reason of why this occurred. It seems that by showing participants a few neutral words followed by an emotional stimuli (as opposed to one neutral word followed by one emotional stimuli), the neutral words were in competition with each other and the ones which had an emotional stimuli that immediately followed won this competition, taking priority in memory (Mather & Sutherland, 2011). The ABC theory is thus supported even by retrograde impairment because it shows that competition for our attentional resources and ability to remember is typically directed toward whatever is associated with the most saliency and/ or arousing, which then has the possibility to override other items that lack such stimulation.

What these experiments show in regards to arousal-inducing pictures is that biases towards memorizing (or forgetting) an item depends a lot on context, motivation, and competing stimuli. These studies also support evidence of the amygdala's role in processing emotional memories over non-emotional memories. The advantage of emotional stimuli in memorizing an item is what the mnemonic techniques used in this thesis's experiment exploits and will be discussed in the following sections.

3. Summation of the Physiology of Memory

In summation, from this primer on memory, we have viewed the basic features of working and long-term memory. Sensory and working memory have time and item limits, respectively. This can be surpassed by encoding into long-term memory through repeated exposure, mnemonic devices, personal pertinence, and chunking. And finally, physiologically, long-

term memories are encoded from working memory via the hippocampal system, including the amygdala, responsible for the response and memory of emotions.

Many of the ways in which long-term memories are formed has an evolutionary explanation, in that whatever is recurrent, personally relevant, or coupled with emotion, is most likely something that needs to be remembered to survive. Mnemonic systems and chunking, which can occur either naturally or deliberately in language, are LTM-supplements, so to speak, which enhance the capability of LTM, and increase survival chances even more. It probably obvious at this point the role that stories can have on the ability to remember by exploiting the brain's inclination to remember emotionally charged stimuli and use mnemonic systems to aid the process of LTM. But how do stories achieve this?

In the next sections we will look at the effect of stories on memory in general, how oral tradition was able to transmit memorable stories, and how oral stories evolved into stories in writing.

The Effect of Stories on Memory

Through emotion, the human brain is especially adapted to respond to stories. When listening or reading a story, we are able to turn the story into our own ideas and experiences through a process called *neural coupling* (Stephens et al, 2010). During this time, whenever there is an emotionally charged event, dopamine is released, making it easier to empathize and remember, with the additional side-effect of making people come back for more. (Cahill & McGaugh, 2000; Berntsen and Rubin, 2002; 2004). And as opposed to facts, which mostly activate the Broca and Wernicke's area of the brain, a well-told story is able to activate many other areas including motor cortex, sensory cortex, and frontal cortex (Berns et al, 2013). Thus, going back to Baddeley and Hitch's model referenced before (Diagram 2), there is some physiological evidence that the interaction between the phonological loop and visuospatial sketchpad (and thereby an episodic buffer) all happen simultaneously as we use our imaginations and long-term memories to draw inferences and shape the narrator's world in our mind. It is this that makes storytelling so powerful, as it engages us in a multiplex of ways, thus solidifying memories through various systems.

The importance of stories on human memory cannot be overstated. One cogent theory, known as *script theory*, considers that all of memory derives from personal stories. It is claimed:

> *When it comes to interaction in language, all of our knowledge is contained in stories and the mechanisms to construct them and retrieve them.* (Schank and Abelson, 1995).

Thus, according to their theory, stories have a snowball effect, effectively enabling the acquisition of new knowledge on top of old knowledge. Interestingly, Schank and Abelson also reject there to be any type of memory besides episodic memories which derive from experiential memories. Even semantic memory (an ascribed subset of LTM that remembers facts and information), they claim, is generic memory extracted from our past experiences. For example, let us consider the sentence *I was born in Florida*. Of course, no one remembers their birthplace from the time that they were a baby, rather this fact was told to them at some point. Enriching details surrounding the so-called fact, such as why that particular state in the U.S. was the state one was born, which city in Florida, and even potentially greater detail as to who was present during the birth, what time it occurred, etc. was likely told, as well. Thus, the deriving of facts from told information can be either expanded or contracted and formulated into either a short story of simply *I was born in Florida* to a richer type of story appended with more information. Facts are, in this sense, on a spectrum of narrative specificity. Even a fact that is not personal, or a fact that one may have just learned in a textbook or passage, like

the capital of Tajikistan is Dushanbe may have been learned by the story of the Tajikistani Civil War, or if learned devoid of context concerning the place itself, maybe the memory is tied to a personal story of one staying up late all night to study for a geography test and this particular capital city was a memorable sticking point. In other words, it may be possible that much (or all) of our semantic memory comes from extractions of past experiences or stories we have been exposed to about the world and the stories we ourselves create. Interestingly, Schank and Abelson do concede that rote memorization is another route for remembering facts, however, insist that this method is for those who need to use the fact for a specific purpose (like passing a test or impressing a friend) and are likely never to be used again. Due to the temporary nature that rote memorization lends itself to, this infers that long-term memory derived from stories is superior in its longevity.

What this investigation is most interested in, however, is the way in which stories are structured so that they are memorable. Specifically, what features of narration lend themselves to make a story more memorable? To answer these questions, it might behoove us to go back to the source, the origin of storytelling, that is – oral tradition.

Oral Tradition's Memory Systems

It has been evolutionarily beneficial to store memories that contain information concerning anything that would keep us away from danger (e.g. poisonous foods) or anything that would be a boon to our genetic success (e.g. mating strategies). The reward of safety and sex is not only vital for the individual, but if one wants to make sure their offspring also has success in surviving and reproducing, relaying important information to kin becomes an important goal as well. As such, before the advent of writing, it was necessary for people to find ways to pass along important information to their fellow group cohorts to raise the chance of individual survival/ reproductive success, and also for parents to pass down the information to their children. The result was humans developing pithy ways of expressing important knowledge and usually came in the form of adages, aphorisms, idioms, proverbs, and maxims. What made these statements easy to remember is not only these expression's curtness (such as *When in Rome, do as the Romans* or the more modern *An apple a day keeps the doctor away*), but many of these sayings utilize rhyme or rhythm. Thus, these ways of passing information evolved into an efficient system that could save lives (e.g. *Red sky at morning, sailors take warning*; *Red sky at night, sailors' delight*). However, it would not just stop with brief expressions, which could only hold a little information and was subject to its integrity's corruption over time, but ancient people found ways to transmit epic tales across millennia. A long and memorable story had the potential to hold hundreds of important bits of information and lessons. It also had the additional benefit of transmitting culture more robustly than before, allowing groups of people's genes and *memes* to propagate. A *meme*, as the famed evolutionary biologist Richard Dawkins coined, are described as follows:

> *... tunes, ideas, catch-phrases, clothes fashions, ways of making pots or of building arches. Just as genes propagate themselves in the gene pool by leaping from body to body via sperms or eggs, so memes propagate themselves in the meme pool by leaping from brain to brain via a process which, in the broad sense, can be called imitation* (Dawkins, 1989).

One of the most quintessential example of a culture's meme-propagation success is Ancient Greece's influence on the West. And this particular culture's success comes at a unique transitionary time in human history of oral culture to writing, giving us an idea at how ancient oral stories were structured. Serving as a survived model of how this was possible, we can consider Homer's *The Iliad* and *Odyssey,* two poems that were written down during the 8th or 7th century BC, but which had been transmitted orally for hundreds, if not thousands of years (Croally & Hyde, 2011). A number of strategies evolved to accomodate the bredth of

content, most importanly perhaps was that the stories were not just told, but sung. This style of storytelling gave rise to the *rhapsodies* (or *rhapsodists*) of the 4th or 5th century BC and perhaps earlier, which were Ancient Greek bards that would travel town to town and were particularly skilled at this craft. Rhapsody, interestingly, means *to stitch together songs* (*The Rhapsody in Performance*, 2017). To structure these song-stories, rhapsodies used dactylic hexameter verses, which are a metrical line composed of six parts with each consisting of one long syllable followed by two short syllables. Furthermore, the bards would also use epic-style similes (through the use of vivid analogous descriptions of an event) and also would use relatable word-picture associations (Rambo, 1932). Clichés were also commonly used in epic stories, thus relying on previously consolidated memories to a great extent (Miller, 1980). And to make a mental impact on new content, strong characters were created. As one oral culture scholar, Walter J. Ong, writes:

Colorless personalities cannot survive oral mnemonics (Ong, 2013).

Further, only concrete examples of abstract concepts such as heroism, wisdom, and justice were used (Rubin, 1997). This would indelibly make an association to an abstract idea that would be difficult to forget. Similarly, a common modern mnemonic device, sometimes called the *slap in the face principle*, attempts to connect a target item with something that is sexy, unique, violent, absurd, or extraordinary (Lorayne, 1985). Even someone who has only read or watched a version of the Odyssey once probably has some recollection of the main character's squabble with the Cyclops or struggle with the Sirens and other seductresses (e.g. Calypso and Circe). Certainly, many of the Greek mythologies and mythologies from the world religions have some sort of outlandishness. If such bizarreness had never been included the stories, it is probable that those stories would have never made it to the advent of writing, and would be forgotten along the way. It is no surprise religions that are hundreds of years old to millennia old contain such remarkable stories. Additionally, nearly all modern religions have a regular practice of continual repetition of reading and recitation, further aiding their long lifespan. Through extraordinary events, characters, and deliberate recitation of scripture, religions have been embedded in the social conscious mind of a large majority of people and continue to have significant influence despite modern secularization.

And so, in the absence of writing, certain styles that afford efficient memorization were necessary in order to be successfully passed down. Rather than ink, in oral tradition, mnemonic tools were the medium of choice. The recitation styles and any superfluous mundane information that were ill-adapted for memorization did not survive. Of course, however, this form of transmission is prone to substantial error. Just as in the telephone game, where a person whispers along a sentence down a line of people and by the end it is changed significantly, so too oral traditions could not escape this inherent problem of corruption. However, through oral tradition's multiple constraints, it made it so that oral texts need not be remembered verbatim. Each time a singer performed, the text was reconstructed, held together by dactylic hexameter, rhyme patterns, and mnemonic-riddled structure. The main point was not to retell the story exactly as it had been told before, but to transmit the main features of the story, while the method of deliver was left up to the storyteller (Rubin, 1997).

This structuring of oral stories is also backed by empirical evidence as observed by two famous scholars on this topic, Harvard University professors Milman Parry and Albert Lord. In the early 1930s they visited former Yugoslavia and studied the then-present-day oral tradition in the Serbian-Croatian language. Luckily, they found a master storyteller named Avdo Međedović, who could perform a story in a very similar manner and length as the Iliad, as many as 12,000 lines (Nagy, 1996). Through their research of a live oral tradition, they

found that poets are able to store formulas, similar to linguistic chunks we have learned in fair-tales (e.g. *Once upon a time*; *And they lived happily ever after*). These chunks are thought to work in a similar fashion to those mentioned previously with the phone numbers — as clusters of semantic information. And so, in normal discourse people have a bevy of stored words and chunks of words (e.g. idioms, maxims, etc.); and a speaker has relative freedom to arrange their sentences. Epic storytellers, on the other hand, have these chunks organized and structured on a higher level, which are called *themes* or *type scenes* (similar to motif) (Fenik, 1968; Nagler, 1974). Thus, in Homer you see repeated verbal formulas such as *eos rhododaktylos* ("rosy-fingered dawn") and *oinops pontos* ("wine-dark sea"), which served as epic-style clichés, fitting the metrical pattern, and aided the bard's memory as providing a placeholder for a development in the story (Parry, 1987; Hirsch, 2014). Essentially, this kind of chunking of clichés, and the themes that surround them are stereotypes of scenes that are remembered not only in the mind of the story reciter, but also in society's mind. These scenes are cues for the reciter, and thus constrain the story as it is being told. For example, one were to sing a scene in which a soldier puts on armor, there are only so many possibilities of what could be worn (Rubin, 1997). The use of formula to aid memorization of oral stores is known as the *oral-formulaic theory,* and it shows how long epics can be memorized using such scene formulas and how they can be used to improvise and make the story relatable to the general public through using patterns and conventions that most of the audience would already know well. Additionally, the storytellers are not just telling the story, but animatedly singing the tale, adding another layer of emotional experience for both the reciter and recipients. It is believed that listeners would be entrenched in the song, as if in a trance, as the story comes alive in the present moment during the performance (Rubin, 1997). This emotional aspect of the performance may also relate to the theory of mirror neurons, where it's suspected a brain's neurons *mirrors* the behavior of another as though the observer were itself acting, as both performer and audience are inseparably engaged in the narrative (Dapretto et al, 2006; Stephens et al, 2010).

In summation, oral cultures were able to successfully pass down stories, even long epic stories, through various mnemonic tools and formulaic constraints. Added together with vibrant characters and mythic (or outlandish) scenes, the brain's natural proclivities towards remembering were utilized to ensure propagation. Written stories, as we will see in the next section, changed a significant portion of what tools were needed for a story to be memorable.

The Emergence of Writing

Writing fundamentally changed the way in which stories were told. No longer did authors have to be bound by poetic styles that would afford memorization, since all one needed to do was reread what was written if forgotten. The efficiency of books, enabling a reader to flip back to a specific page (as opposed to rolling through a scroll) made this process even faster. Not surprisingly, the first hand-written stories in ancient times were transcriptions from oral tradition (e.g., Gilgamesh, the Hebrew Bible, the Iliad), and later writers would keep many of these elements and rhetorical styles long after writing was deeply in place (e.g. Virgil's *The Æneid*, Dante's *Inferno*). According to Ong (2013), rhetorical style of narration only really significantly changed when the written word became printed word. For one, greater legibility lent itself for faster reading and made for a different relationship of the authorial voice in the text, and thus different styles of writing emerged. Secondly, with the forms of poetry that did survive, the sound of words were not only considered during its construction, but also the spacing between words and line; and the layout of the entirety of the text became an issue of consideration. This can occur with prose in the form of how one lays out chapters, preambles, or the general contents of a story, or with non-fiction, information. Perhaps physical layout of

writing is most iconically used in poetry, and also is known to be fairly liberal on what is allowed. Ong gives an example of a famous poet who used a unique poetic device, E. E. Cummings whom namely used distinct spaced typography to paint a picture with his words:

As the cat
climbed over
the top of
the jam closet
first the right
forefoot
carefully
then the hind
stepped down
into the pit of
the empty
flowerpot (398–9) (Marano, 2003).

The printing press also brought with it for authors a sense of ownership, which could never have occurred in an oral tradition. This created an internalization for the author as it

Encouraged the mind to sense that its possessions were held in some sort of inert space (Ong 2013, p.129).

It also encouraged a sense of closure, as the printed word became apparently finite on the page, giving a sense of concreteness of facts that was not present before. Furthermore, printed text gave rise to *intertextuality*, that is – text borrowing the styles and knowledge of other texts, which could only be done to a much smaller extent in oral societies (Ong, 2013). As a result, the printing press eventually ushered in the Renaissance, as ideas spread and began to flourish, and from there, the modern era. Also as mentioned in the introduction, even the genre we give a text has an impact on its memorability (Hendersen and Clark, 2007). Ancient Oral tradition likely did not have such distinctions or genres.

Lastly, writing also changed the style of narration to some degree. Novel literary devices emerged in fictional novels, including (not exhaustively): changing the *focalization* and *scope* of characters (the degree of access to a character's consciousness and their point of view) (Genette, 1972; Talmy, 2000), the level of *granularity* and *density* (detail and level of description) (Talmy, 2000), and playing with a narrator's *introverted* or *extroverted consciousness* (inward and outward looking narration) (Chafe, 1994). Some of these could also be argued to have existed in some form in ancient oral tradition, however it could be suspected that the ways in which an author can now use these literary devices are more complex and recurrent than ever, thanks to intertextuality.

What is important regarding memorization of narration here is that not one of these literary devices make a text memorable in of itself. In fact, there can be said to be no inherent meaning effect with whatever device an author (or poet-bard for that matter) decides to play with. Rather, it is the formulation and deviation from a standard which grabs the reader's attention. This is also called *foregrounding,* a deviation from a standard of writing to bring out saliency, a term created by Jan Mukarovsky (Miall & Kuiken, 1994). As section 2 pointed out, long-term memories can only be formed through time when competing stimuli are reduced. And one of the best ways to reduce competing stimuli is by creating a stimulus that stands out among the rest.

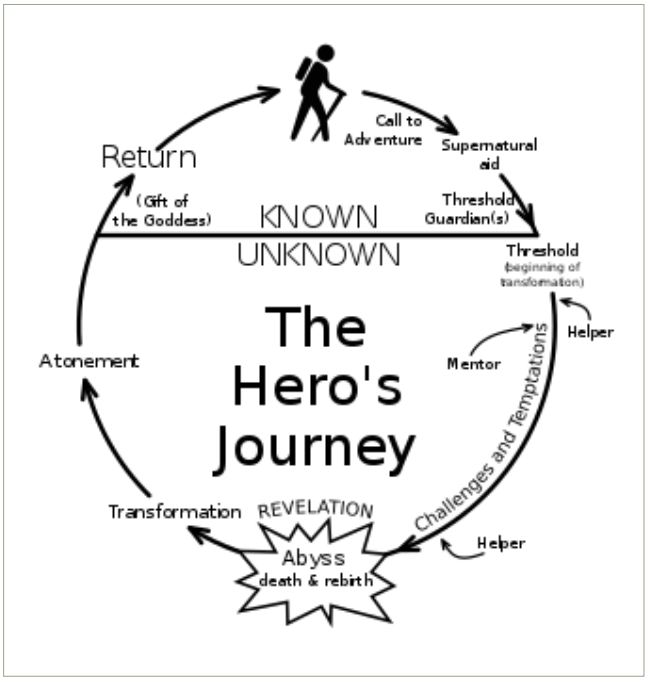
In summation, writing, most especially after the advent of the printed word, allowed for various forms of structuring the text while abandoning the now unnecessary need for the poetic style that is attributed to oral stories. The constraints which held oral stories together structurally were no longer needed. Those features that were forgone or reduced considerably were dactylic hexameter, rhyme patterns, heavy use of clichés. And to some degree, epic-style similes. Writing also changed narratives by affording a sense of ownership of the story, forgoing the fluid and dynamic rhapsodic style of oral tradition. Intertextuality also gave writers the opportunity to trade ideas and writing styles in a way and at a speed that was not possible before. As printed stories entered the public's conscious, new ways of tinkering with text and reading a text were formed. This resulted in new literary devices that were more complex in the written form, and could be utilized to create differences with earlier work, or differences with earlier parts of the same work, to make a story more memorable. And lastly, the labeling of whether a work is fiction or not also has impact on how well it is remembered. However, many elements from oral tradition did not go away entirely. In the following section we will explore both what remained the same and what new possibilities opened up to authors. Let us now look at those devices and features which make a narration memorable.

The Main Features of Memorable Narration

Memorable narration, whether written or verbal, carries with it many features, and when filtered out, can be recognized and begun to be understood. In the case of oral text, as we have examined, mnemonic features embedded in the structure of the storytelling are plentiful. In summary of those aforementioned features, they are the use of dactylic hexameter, rich descriptions (hyperbole), patterned epic-style similes, strong and unique characters, and extraordinary events.

Due to writing's affordance of structure and page layout change, dactylic hexameter was no longer necessary to hold a story's structure together in the mind. However, other features appear to have been passed down from oral tradition to written texts, and on to visual media as well. Vladimir Propp's theory is one such famous analysis of narrative structure of novels and film alike. After analyzing numerous Russian fairy-tales, Propp came up with 31 functions of a narration (which are sometimes referred to as *mythemes* or *narratemes* – a unit of myth or narration) and seven different character types that are all more or less bound to appear in a story (Propp, 1968; Barthes, 2013). Propp's narrative theory, sometimes called *The Hero's Journey*, has been applied to epic stories of all sorts, including past stories such as the Odyssey and the Grimm fairy-tales to modern movies such as *Star Wars* and *Shrek*. (See concise version of Propp's *The Hero's Journey* in Diagram 4).

Diagram 4
A simplified version of The Hero's Journey



Inspired by Propp, Roland Barthes developed narrative codes in which to analyze a text, which is used by authors to keep the interest of the reader. He devised five codes: 1) *hermeneutic code*: which creates an enigma (e.g. who is the murderer?) 2) *proairetic code*: sequential events that implies further action (e.g. someone unsheathing their sword, building suspense as to what may happen next), 3) *semantic code*: a sign which describes characters, settings, and events (e.g. *justice*, *love*, etc.), 4) *symbolic code*: which is distinguished from semantic code in its utilization of opposites to create drama and tension (e.g. good and evil), and 5) *cultural codes*: an element in a narrative that refers to common bodies of shared knowledge (Barthes & Howard, 1975). The first two codes involve ways of creating suspense in narratives by introducing unanswered questions, which he interestingly compares to having

> *The same tonal determination that melody and harmony have in classical music* (Barthes & Howard, 1975).

Although stories are no longer explicitly sung as in oral tradition, it is possible that some sort of musical features remain. The latter three codes are said to be for text comprehension and are outside of chronological order in any given story.

Similar to Barthe's symbolic code, Claude Levi-Strauss also came up with the *Theory of Binary Oppositions,* where the production of meaning is understood in terms of opposing forces (e.g. good-evil, girl-boy, man-machine, etc.) (Levi-Strauss, 1955). Moreover, in the same vein of Barthe's narrative codes, structuralist linguist Tzvetan Todorov suggested stories begin with a status quo, while the drama of the story is the equilibrium being disturbed in some way, followed by the main character(s)' quest to restore that balance (Todorov & Weinstein, 1969). Most of these analyses are applied to modern fictional tales and film, however it is clear that their roots are ancient. Epic tales are known to contain all of the elements just mentioned. And so it is remarkable how little memorable narration has changed when viewed in terms of units of narrative structure, or *mythemes*. While the poetic structure, such as dactylic hexameter and singing of the tale, may have shed away from stories, it seems that the *mythos,* or recurrent narrative theme, which made oral tradition's characters and events so memorable has served as an exaptation for modern novels and film. The memorable themes that listeners or readers follow in a story have not changed for thousands of years. Perhaps there is something primordial about them that is embedded in the human condition.

However, today there has been a shift to the exploitation of our natural proclivities, or at least there is more of it to spot, in the form of sensationalist news. Using shocking and exciting stories that humans are inherently drawn to, news networks such as as American networks MSNBC, CNN, Fox News, and more overtly, The National Enquirer (and other tabloid journals), not to mention the more recent and increasing slew of online *fake news* websites, all know how to pique the public's interest more than ever. In a recent book called *Trust Me, I'm Lying*, about the state of affairs in media news (which most media is online now), the author Ryan Holiday explains that this way of creating sensationalist news headlines and articles is a byproduct of the new paradigm of how authors get paid — that is, per click. Unfortunately, in this kind of system, he argues that the way in which news is written will stay sensational and biased, even sometimes to the point of fabrication (Holiday, 2013). Science of the study of memorable narration supports what news media outlets have already known, which is that sensational content produces better recall (Cahill & McGaugh, 1995; McCabe & Peterson, 1990). So not only is sensationalism attention-grabbing (such as click-bait titles or shocking imagery), but also works to arouse our emotions and make what we read more salient and memorable.

Conclusion

This paper has investigated the theories surrounding how memorization works as well as narrative theory in oral society and in written form. In Section 1, we found that even labeling a story fictional can enhance the recall of the material. In Section 2, we have distinguished several ways long-term memories are formed, including: mnemonic devices, personal pertinence, repeated exposure, and emotional arousal. In Section 3, we have found that many more areas of the brain are activated during story-telling than fact-telling, such as the motor cortex, sensory cortex, and frontal cortex. We also considered *script theory,* which posits that all remembered facts are just residue of a personal-story-memory. In Section 4, we explored the various ways oral tradition used mnemonic features to enable a story to be told across generations. In Section 5, we looked at how writing removed and changed some of those features, while keeping others. And lastly, in Section 6, we looked at what main features of storytelling remain, which are: The arc of the hero (Propp's *The Hero's Journey*), the use of narrative codes to keep the interest of the reader, the use of binary oppositions, and extraordinary events or language (e.g. Hyperbole, sensationalism, vivid imagery etc.). We can reasonably conclude several main features which make narration memorable, including 1) emotional arousal, especially in the form of extra-ordinariness or personal-pertinence, 2) mnemonic devices which tie into our LTM of things remembered from once arousal-caused memories, 3) chunking and clichés, which consolidate information into concise forms, 4) contrast in a story to reduce competing stimuli, such as foregrounding techniques or by way of Claude Levi-Strauss's Theory of Binary Oppositions, and 5) create suspense à la Barthes' first two narrative codes.

Understanding and implementing narrative features that afford memorization could help authors and content creators make memorable works, as well as potentially aid educators in utilizing these features to make knowledge more salient and memorable.

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Santrauka

Kevin A. Crowley. Įsimintinumas pasakojime: mnemoninių priemonių žodinėje ir rašytinėje tradicijoje apžvalga

Kaip pasakojimas veikia atmintį? Šis išsamus tyrimas nagrinėja įsimintinumą naratologijoje, ypač žodinėje tradicijoje, ir tai, kaip mnemoninės priemonės padėjo kartoms įsiminti ilgus epinius pasakojimus. Atskleidžiama, kaip dėl rašto išradimo kai kurios mnemoninės priemonės išnyko arba pasikeitė, o kitos išliko. Tiriamas diskurso ir temos elementų poveikis žmogaus atminčiai. Nagrinėjami keli atminties aspektai, įskaitant fiziologinį atsiminimų formavimąsi, t. y., kaip per amžius buvo atsimenamos ir perduodamos žodinės istorijos. Trumpai nagrinėjamas rašymo poveikis pasakojimui. Be to, pasakojimo elementų žodinėje tradicijoje ir rašyme tyrimas naudojamas suprasti, kokios priemonės lemia pasakojimo įsimintinumą. Taip pat trumpai aptariamos šiuolaikinės pasakojimo teorijos ir palyginama, kokios priemonės randamos ir žodinėje tradicijoje. Esminis tikslas yra suprasti, kaip pasakojimai veikia ilgalaikę atmintį remiantis pagrindiniais, emocionaliais ir susiejančiais atributais.

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