Writing as Thinking

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Writing is analyzed as thinking that uses paper or other media to externalize and manipulate symbolic expressions. Mental operations of natural language can occur somewhat independently, and they communicate well with language that has been written, but for skilled writing these operations need elaborate installation in the mind. We explore four methods to see how expert writers externalize thoughts and interact with them: laboratory comparisons of novices and experts, interviews with accomplished writers (mostly of prose fiction), biographical analysis of Jane Austen's development as a writer, and consideration of Gustave Flaubert's notes and drafts. Writers can use paper to extend their thinking, and to create frameworks of cues that enable readers of a story to construct mental models that they may enter empathetically.

Keywords: fiction, drafts, external memory, cues, mental models

I. A. Richards wrote: "A book is a machine to think with" (1925, p. 1). Here we propose that a pen is a machine to think with. We explore how writers' thoughts can be improved when externalized onto paper or some other medium. Following an introduction on the relation of writing to thought, we concentrate mainly on distinguished writers of novels and short stories. A parallel exploration could be made from the study of students' writing (for instance, using studies of the kind reviewed in MacArthur, Graham, & Fitzgerald, 2006).

If writing is a kind of thinking, we should start with what is known about thinking. A recent sourcebook is edited by Holyoak and Morrison (2005). An important line of influence comes from Bartlett (1932), who found that when we remember a story, we store it in long-term memory in a schema, with only a few details. Unlike artificial memory, such as a photograph or tape recording, which are fixed and passive, human long-term memory is based on meaning and actively generates meaning. The importance of Bartlett's work for literature was emphasized by Gerrig (1993). Although reading or listening to a story is different from interacting in the real world, Gerrig shows that the cognitive processes of understanding a narrative world are those outlined by Bartlett, and are not substantially different from those that allow understanding of the ordinary world.

Craik (1943) extended Bartlett's idea and proposed that thinking involves translation of some aspect of the world into a schema, which he called a mental model. Manipulation of such a model can produce a new state, and this manipulation *is* thinking. Then retranslation can occur of the derived state of the model back into terms of the world, for instance into action or words. The idea has similarities to Wittgenstein's (1922) proposal that "The proposition is a model of reality as we think it is" (4.01). Mental models have become important in cognitive psychology (e.g. Johnson-Laird, 1983; 2006; Marr, 1982). Our language is thick with terms that refer to the model-making function. As well as the terms *schema* and *model*, there are: *allegory*, *analogy*, *hypothesis*, *metaphor*, *representation*, *simile*, *theory*.

There is substantial evidence that readers of fiction locate themselves within models of imaginary worlds cued by narratives they are reading (e.g., Zwaan, 1999; 2004). The idea of models is also used in literary studies, for instance by Vendler (1997) in what is generally considered the best book on Shakespeare's sonnets. Here is the first quatrain of Shakespeare's Sonnet 73:

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That time of year thou mayst in me behold
  When yellow leaves, or none, or few, do hang
  Upon those boughs which shake against the cold,
  Bare ruined choirs, where late the sweet birds sang
(Vendler, 1997, p. 333).

The center of Vendler's commentary on this sonnet is as follows:

Three models of life are proffered by the speaker . . . the first two models are linear ones—spring, summer, autumn, winter; morning, noon, afternoon, sunset, twilight, night" (p. 334).

She points out that the model in the passage quoted is of life as moving linearly from spring to winter. In the next quatrain, it moves linearly from morning to night. These models are replaced in the next quatrain by a model of life as "the glowing of such fire . . . consumed with that it was nourished by." The poem works by successively projecting these models onto the aging process. Life becomes no longer "ruined," by impersonal processes of time. It is "consumed" by the actions of living.

Although deciding among theories of thinking is controversial, most owe something to Bartlett's and Craik's idea that to think is to take a problem in the world and operate on a mental version—a model of some kind—within which it is possible to make inferences. One of the functions of imaginative writing, then, is to offer cues to make this model process work for the reader.

To develop a theory of writing as thinking, further steps are necessary. Critical to our proposal is externalization, which distributes some of the process from inside the head to the outside world. Such distribution has been discussed by Hutchins (1991, 1995). The idea was already present in the Turing machine (Turing, 1936), which had three properties. First, it used symbols: binary numbers 0 and 1. Second, it could manipulate these symbols, for instance. in response to an instruction (a program) it could change a 0 to a 1. Third, it could write symbols to a paper tape memory and read symbols from the tape. The function of the external memory is storage and retrieval of intermediate results of manipulations.

In mathematics it is uncontroversial that it is important to externalize symbols in well-designed representations, in order to comprehend and manipulate their relationships. Just as mathematical representations may involve Arabic numerals, differential equations, and Carte-

sian geometry, so a language such as English involves symbols (words) related by a syntax that implements such matters as case and tense. A writer can externalize thoughts onto paper as intermediate steps, then read them, and change the words in subsequent versions. Writing and paper of potentially infinite extent enable a kind of thinking that is not impossible without external memory, but that is made easier by storing some thoughts temporarily in the external medium.

A second step in thinking about a theory of thinking as relevant to writing is to consider systems within the mind. It is widely accepted that there are two distinct kinds (see, e.g., Kahneman & Shane, 2005; Stanovich, 2004). System 1 is fast, intuitive, and based on associations. System 2 is slow, sequential, and rule based. It is often proposed that whereas System 1 is well modeled by parallel distributed processes of the kind described by McClelland and Rumelhart (1986), System 2 has symbolic properties of the kind proposed by Turing. Clark (2006a, 2006b) proposes that, with the emergence of the symbolic System 2 based on language, the mind becomes essentially a hybrid machine: In one layer, language-based operations come to play an irreducible role that complements the operations of the evolutionarily older layer of parallel associative systems. A related approach is by Sadoski and Paivio (2001), who also identify two types of mental code of which one is verbal. They emphasize that the other, nonverbal, one is based on mental imagery that supports vivid experience. Writing as a technology of language thus offers a well-poised problem: How does a story that seems directly experienced when the reader is lost in a novel (see Green & Brock, 2002) enter via written language (see Graesser, Olde, & Klettke, 2002) and penetrate to the intuitive layer? In narrative understanding, as Graesser et al. show, the language layer has several modes that deal with literal and derived representations of the text, with point of view, and with genre. Whereas films interface us with a perceptual world, a short story, novel, or poem, is addressed via language to our memory. This memory has several aspects (e.g., short term and long term). It is thought to depend primarily on associative structures, and it supports autobiographical rememberings and understandings that derive from intuitive mental models of the

physical and social world. It is presumably within this layer that situation models of the kind Zwaan (1999, 2004) describes are constructed and experienced.

A third step in a theory of writing as thinking is to ask what writers of imaginative literature think about. They think of many things but, since the earliest narrative writings, emotion has been salient: the sadness of Gilgamesh, the anger of Achilles, the shame of Adam and Eve. In a study of what stories can be regarded as human universals, Hogan (2003a) has found that two kinds are most common: the love story and the story of angry conflict. Emotions are central to human life, essential to understanding others and ourselves. They need a lot of thinking about because they are often problematic. They are primary topics in conversation (see, for instance, Rimé et al., 1998). Paper as a secondary conversation partner allows writers and readers to think about them too.

The centrality of emotions to imaginative writing has been discussed by Opdahl (2002), who adds to the verbal and imagistic codes suggested by Sadoski and Paivio (2001) a third code: an emotion code. He proposes that emotion is a distinct representation that is central to meaning in imaginative literature. Not only is it the engine of both character and plot, but readers desire to be moved by a novel or short story. Opdahl says that emotion, "belongs originally to the authors, of course, and to the characters they create, but my concern is with the readers, as they live the text vicariously" (p. 60). If we adopt the Oatley and Johnson-Laird (1987) theory, which parses emotion into two parts, propositional and nonpropositional, we can see emotion not only as being able to mediate readily between verbal and intuitive aspects as mental models are constructed, but as capable of carrying the personal core of meaning in a story, as Opdahl insists.

Emotion is important in what may be called the Romantic theory of art (Oatley, 2003), which has two main hypotheses. The first is that art depends not on thinking but inspiration. The prototype is Coleridge's (1816/1977) account of how his poem, "Kubla Khan," came to him in a dream, "in which all the images rose up before him as *things*, with a parallel production of the corresponding expressions, without any sensation or consciousness of effort" (p. 156). The second, articulated by Collingwood (1938), is

that all real art is the articulation and expression of emotion in a language such as words, music, or painting. Opdahl's theory of emotion as a code that represents personal meaning derives from this second hypothesis. In this article we test both hypotheses.

Empirical Studies of Whether Writing Augments the Mind

Olson (2001) has argued that the invention of alphabetic writing shows language to be composed of words, an idea that does not occur to people before they can read or write. Afterwards, however, words can be cast into thoughts, and thoughts can be cast into words. One can take Olson's idea a step further: Whereas talking and oral performances occur in a domain of utterances, writing takes place in a domain of sentences. In the domain of utterances there are speech acts—to warn, request, inform, and so on, and the pragmatics of conversational turn-taking—largely, as Dunbar (2003) has shown, for purposes of maintaining relationships. In the domain of literary writing, the laws are of syntax and semantics, and the purposes are to engage attention and offer cues (to the intuitive layer) that enable the reader to create an imaginative construction or simulation (Oatley, 1999). Clark (2006a) has argued that human language creates a new evolutionary niche, and that humans become adapted to it, for instance, in conversation. Writing extends this niche, and requires further adaptation, which starts with learning to write and read. Clark's hybrid idea implies that as one reads a written piece, it must aim at basic associative processes by means of cues, but it must also run linguistically on its own terms. This formulation enables us to maintain the twin ideas of (a) construction of mental models and thinking as involving multiple constraints as offered by parallel connectionist systems of System 1, and (b) the phenomenology of language-related streams of consciousness (see Oatley, 2007), that need to be processed sequentially in a manner characteristic of System 2. The phenomenology echoes ideas of Mead (1913) that thinking involves adopting (as it were) external forms, for instance, of voices in debate, so that they become tools in the workshop of thought. It includes, too, the idea of Vygotsky (1930) that thinking involves the internalization of cul-

ture from things said in the outside world (see also Bakhtin, 1963/1984).

One may imagine, then, that with the invention of alphabetic writing, the language layer of the mind is augmented. A person who is writing can move back and forward between the internal language layer and externalized text. Storage of intermediate results becomes possible in the equivalent of Turing's paper-tape memory. But does externalization of language in writing enable anything further? This question requires consideration of research begun by Luria (1976), who studied two groups in Uzbekistan in the early 1930s: a group of illiterate people and a group who had received a brief training in literacy. Among his cognitive tests he asked: "In the Far North, where there is snow, all bears are white. Novaya Zemlya is in the Far North. What color are the bears there?" The form is a syllogism. Of 15 people in the illiterate group, only four were able to answer this question. Those who could not answer it replied, for instance, that they did not know because they had never been to Novaya Zemlya. By contrast all 15 of those in the group that had attended a literacy program could solve the syllogism, even though, as Luria says, they had ". . .attended school only briefly, and many were still barely literate" (p. 15).

Language externalized in writing seemed to augment intuitive thought to enable language-based reasoning beyond immediate experience. A problem arose, however, when Scribner and Cole (1981) repeated Luria's design in Liberia, with an extra group of participants. One group was without writing or schooling. A second group had attended formal school, and could read and write English. The third group (the extra group) had not been to school, but could write in an indigenous logographic script that was learned at home and used for commerce and interpersonal correspondence. Like Luria, Scribner and Cole gave abstract reasoning tasks, including syllogisms. Those with schooling could solve these tasks but the illiterate and those who could only write in the indigenous script could not. It therefore seems that thinking by means of language-that-can-be-written requires both a leap into a world of the imagined, as proposed by Harris (2000), and training of the kind provided by education in which a thinker can acquire confidence in this newly installed augmentation of writing-based reason-

ing. Language-based thinking does not require writing, even for complex works of art. After all, Homer is thought to have been illiterate; and illiterate storytellers of the recent period who compose and perform have been recorded (Parry, 1971). The hypothesis is that the language-based thinking that occurs in composition is helped by writing and also that the machinery for fluent and creative writing does not install automatically, but that, like expertise in physics or chess, it needs continual effortful use and social validation.

The studies of Luria, and of Scribner and Cole, seem to have gone as far as possible for testing this question on different linguistic groups. But might studies of individual writers help to understand what goes on when thoughts are externalized in writing? We approach the problem from four directions: laboratory observations, content analyses of interviews with famous writers, the literary biography of Jane Austen, and a succession of plans, sketches, and drafts, of Gustave Flaubert for one of his short stories.

Writers and Writings

Many, probably most, literary writers start on a piece by putting something on the page that will prompt thoughts they might not otherwise have had. Here for instance is Frank O'Connor, one of the most accomplished short story writers in English of the second half of the twentieth century, in an interview for the magazine *Paris Review*:

> "Get black on white" used to be Maupassant's advice—that's what I always do. I don't give a hoot what the writing's like. I write any sort of rubbish which will cover the main outlines of the story, then I can begin to see it. . . I just write roughly what happened, and then I'm able to see what the construction looks like. (Cowley, 1977, p. 167).

O'Connor is talking about perhaps the most important function of paper for writers. Thoughts one achieves in one's final draft cannot be articulated at first. They are only reached via a series of intermediate externalized thoughts. Paper can be like a conversation partner, but with the enhancement that the words do not dissolve into the air. What is written can also be taken up by someone else who does, as it were, the backward translation of words into mental models within which he or she can think.

In this way, thought can be passed from mind to mind. Also the writer can be the reader, can replay an externalized thought in language form back to himself or herself, and take part in the iterated movement by which thoughts can be improved.

Planning to Write: Writers in the Laboratory

In cognitive psychology, the principal recent approach to understanding the attainment of skills has been via the study of expertise. A conclusion of this research (see, e.g. Ericsson, 1990, Ross, 2006) is that to become an expert skater, violinist, or poet, one must devote at least 10,000 hr to problem solving in the domain of interest. The time must be spent in acquiring new knowledge and procedures. The person needs constantly to push her- or himself, or be prompted by a coach, beyond current abilities. Simply performing an activity is not enough: that is why, despite the many hours they may devote, amateur golfers do not improve beyond a certain point. It is important to know where to concentrate to improve current skills. In the arts, the artist must come to act creatively with a chosen medium, and transform the genres in which she or he works. The setting of goals and acquisition of skills become overriding passions. Variations must be explored and errors made. In *Ulysses,* James Joyce (1922/ 1986) has his character Stephen Dedalus put the matter like this, talking about Shakespeare: "A man of genius makes no mistakes. His errors are volitional and are the portals of discovery" (p. 156). We need not restrict this function to geniuses: We can all use imperfect drafts as portals of discovery.

The classic psychological research on writing was by Flower and Hayes (1980, 1981), and Hayes and Flower (1980, 1986). They arranged for novice and expert writers to come to a laboratory and think aloud during writing assignments. The method generates protocols: writers' transcribed spoken-aloud thoughts plus the writing they produced. Here is an example. (The numbers indicate sentence parts; the numbering is from the original. Parts 12 and 13 make their way into the writer's draft. Dashes indicate pauses of 2 s or more.)

. . . Oh, bleh!—say it allows me (10)—to use (11)— Na—allows me—scratch that. The best thing about it

is that it allows me to use (12)—my mind and ideas in a productive way (13) (Hayes and Flower, 1986, p. 1109).

Hayes and Flower (1986) developed a cognitive model of the writing process. Writing accomplishes a set of goals and has phases of planning, sentence generation, and revising. "In planning . . . the writer generates ideas and organizes them into a writing plan. In sentence generation, the writer produces formal sentences intended to be part of a draft. In revising, the writer attempts to improve a draft" (p. 1107). The writing plan has to solve an ill-defined problem: "What am I trying to do with this piece of writing?" The plan develops changes, sometimes radically, as the writer goes along, and often previously unsuspected goals relevant to the piece are discovered. Subprocesses are not typically sequential, but are woven together and applied iteratively. Skilled writing is working with multiple constraints, which come into play in different phases and change. The metaphor Flower and Hayes (1980) offer is of a busy telephone operator, who juggles multiple calls, makes connections, and solves problems, while speaking in a calm voice. The constraints to which the writer must adapt include knowledge of the topic, conventions of writing, vocabulary, understanding how the world works, memories (of incidents, principles, and people), and solving the rhetorical problem of engaging the reader. Though held in memory, these pieces of knowledge may be loosely conceptualized, disparate, and even incoherent. By contrast, most pieces of writing are aimed at being rhetorically convincing, conceptually clear, and coherent.

Hayes and Flower found differences between experts (professional writers) and novices (typically students in grade-12 school or first-year university) in all three phases of the process. Experts, as compared with novices, in the planning phase produced a more elaborate set of interrelated goals, including consideration for their readers; in constructing sentences, their sentence parts were 50% longer; in revising, they made three times as many alterations that changed the meaning of what they had written. Novices changed little, and only 12% of their alterations changed meaning. A comparable conclusion has been drawn in work on reading: Novice readers concentrate at the word and sentence level, as compared with experts who

think about larger-scale structures and their possible meanings (Graves & Fredrickson, 1995, Peskin, 1998).

Among recent postulates of this line of research is that of Hayes (2001), that a writer's reading of the text generated so far (stored in external memory) is more important than had initially been thought (see also Galbraith & Torrance, 2004; Hayes, 2006. On effects of word-processing see MacArthur, 2006.)

Relevant to the question of what the text written so far supplies is the experience of a well-known author of detective stories, Howard Engel, who suffered a small stroke that made him unable to read. Words other than the very smallest could not be directly understood. He had to sound each one out, letter by letter, to know what it was. But the stroke spared his ability to write. His diagnosis was *alexia* without *agraphia.* His most recent novel, *Memory Book* (Engel, 2005), was written following this stroke. It is about Engel's private detective, Benny Cooperman, who suffers a blow to the head that produces the same brain damage as that of his author. Completing the novel was a formidable task. In an interview with one of us (KO, 2006), Engel described how he wrote a first draft fairly quickly by typing into a word processor, but then needed more input than usual from editors. A copy editor with whom he had worked before tidied up the manuscript. Then his usual commissioning editor marked up his draft to show where to concentrate, for instance where the prose was "a bit soft," or where he was being too wordy. At these places he spelled out his words, letter by letter, and turned them once again into language that was intelligible to him. Then he could work to improve the local area indicated by the editor. After this, the copy editor worked on such matters as repetitions, and he corrected these. Then the copy editor read the resultant draft aloud to him in its entirety. This allowed Engel to see where paragraphs had gone in unintended directions, and to see where to make larger alterations. He said: "It gave me a chance to stare it [the whole book] in the face, which was something I couldn't do for myself."

An important area of research has concerned short-term working memory (Baddeley, 2003), which can hold only some seven chunks of information while they are understood or manipulated. It also cues long-term memory (Kellogg, 2001b). Chenoweth and Hayes (2003) have found that interfering with short-term memory interferes with fluency of writing. When novices write, they tend mainly to be prompted by their capacity-limited short-term memory of their previous sentence, rather than by any overall plan. Without help from his editors, Engel's stroke had, in some ways, pushed his revisions back toward the novice level of concentrating on sentences.

A second kind of memory is long term. For the novice writer this might contain episodic knowledge (of particular incidents) and topic knowledge (perhaps derived from books or lectures). The long-term memory of expert writers is enormously expanded in the domain of writing. E. M. Forster (1927) and Frank O'Connor (1963) have written books that articulate some of this knowledge. It can include episodic knowledge drawn from the writers' own lives (for instance, of how people they know might be characterized) and episodic and semantic knowledge of books they have read. It is articulated for purposes of skilled reading, and it can guide the generative process of writing. Flower, Shriver, Carey, Haas, and Hayes (1989) have shown how writers bring three levels of planning from long-term memory to the writing process: topic knowledge, schema knowledge, and constructive knowledge. Several studies have shown that the more elaborate a writer's topic knowledge, the better he or she can write on that topic (Kellogg, 1994; 2001a). Schema knowledge includes conventions of writing that include the skills of a particular craft, such as plotting and character development for stories, familiarity with the structure of genres, and so forth. Constructive knowledge is a set of heuristics to create a representation useful to a current piece of writing, which is also flexible enough to take advantage of opportunities that emerge unexpectedly during the development of a piece.

An innovation that is critical to understanding expert writing is by Ericsson and Kintsch (1995) and Kintsch (1998, 2005). By studying tasks such as text comprehension, they found that experts create what they call a long-term working memory, which has some of the characteristics of short-term memory, such as being rapidly cued and enabling manipulation of concepts. It is not restricted to just a few chunks, but it exists only within a specific domain. For

an expert the training of skills creates a network that is organized and interconnected, and that can be cued from short-term memory. But unlike the properties of short-term working memory, its properties are temporary; they last only for as long as a person maintains his or her skilled expertise in the domain. McCutchen (2000), and Chanquoy and Alamargot (2002), have shown how the development of expertise in writing involves the ability to elaborate such a long-term working memory. A key idea is that when an expert writer reads a draft he or she has written, this external memory prompts and articulates the specialized long-term working memory, which includes fluent language-generation processes, so that writers become able, as Bereiter and Scardamalia (1987) propose, to do knowledge transforming rather than just knowledge telling.

Kintsch (1998) says: long-term working memory "is severely constrained and does not come easily" (p. 221). He implies that over a long period, expert readers and writers can assemble meaningful patterns and paths through a vast array of literary—language-based—knowledge, somewhat as London taxi drivers assemble a mental map of London so that they can make specific journeys. In a neuroimaging study, Maguire et al. (2003) have found that certain areas of the brains of these drivers were enlarged to an extent that correlated with the number of years spent taxi driving. Perhaps we may anticipate a comparable study of expert writers who have built a long-term working memory for writing.

When working on a piece using a developed long-term working memory, a writer may perhaps be able to hold a whole piece in mind so that, as Faulkner put it in his interview for *Paris Review*: "Sometimes technique [constructive knowledge] charges in and takes command of the dream before the writer himself can get his hands on it . . . the finished work is simply a matter of fitting bricks neatly together" (Cowley, 1977, p. 129). On most occasions, the piece being written is loaded up into long-term working memory, and distributed between it and the text written so far. Each part can then cue the other, so that the piece on paper is gradually, and thoughtfully, elaborated.

When an author is writing a piece, long-term working memory holds what Faulkner called "the dream." The metaphor of *dream* for a piece of fiction has been in use for a long time (see, e.g., Miall & Kuiken, 2002). Oatley (1999) has called it a simulation that runs on minds. It includes characters, their plans, actions, and thoughts. According to this idea, the discourse structure of the text in the language layer must be able to start up and sustain the simulation in the intuitive model-forming layer; the text's suggestion structure of style, tropes, and literary sentences must be able to cue in the reader associations and memories that help bring alive the text as a kind of dream.

The theory of Hayes and Flower is accepted by Sadoski and Paivio (2001), who have augmented it by adding their dual-coding construction, and by performing several experiments that support the augmented approach. As we have proposed, a primary goal for writers of fiction is to engage the reader emotionally. Good writing is not—as novices sometimes think—doing a mind dump: emptying the contents of the mind onto paper. An effective piece of fiction offers the reader cues to start up and run the simulation-dream of the story world, characters, and events, a simulation in which the reader is emotionally involved. When a writer reads what she or he has written, one test is whether reading it can sustain the dream with its emotional aspects. Although an ordinary reader must take up the cues and invoke the dream, a writer who is reading a draft is trying to improve the cue structure so the story does come emotionally alive. In some genres the rhetorical task is well understood. In the thriller it is to create a protagonist who is likeable, then subject this character to threats that will make the reader anxious on her or his behalf. The reader turns the pages quickly until the emotional relief of the protagonist's safety is achieved. In deeper kinds of fiction, the rhetorical problem is to create what Oatley (1999) has called (following Winnicott, 1971) a space in between the text and the reader, in which the reader may create her or his own thoughts and emotions, and may accomplish a writerly reading (Barthes, 1975), or as Miall (2006), calls it, a literary reading. For this to occur the reader, too, needs to cultivate an articulated long-term working memory of the literary domain within which such thoughts and emotions can occur.

Interviews: Writers at Work

We made a selection from the 10 volumes of interviews, *Writers at Work* (Cowley, 1977; Plimpton, 1977a, 1977b, 1977c, 1981, 1985, 1988a, 1988b, 1989, 1992), originally published in *Paris Review*. The writers we selected talked about their own writing in sufficient detail to allow content analysis: they talked either about their theory of composition, or craft aspects of their writing, or both. To accommodate to the concerns of this article, we concentrated on writers of prose: short stories, novels, memoirs, and essays. Included were all the writers in *Writers at Work* First Series ($N = 16$), as well as the short-story writers, novelists, and essayists, in the Second Series ($N = 9$) (Cowley, 1977; Plimpton, 1977a). To sample from later in the interviews, the writers in the Ninth Series were used (one playwright excluded, $N = 11$) (Plimpton, 1992). Because women were underrepresented, all interviewees except the two poets and one playwright in *Women Writers at Work* were included, where they had not already been included from the First, Second, and Ninth Series ($N = 10$) (Plimpton, 1989). Because our study was of expertise, all winners of a Nobel Prize for literature were considered who had included prose among their works. From this group Samuel Beckett, Boris Pasternak, and John Steinbeck were excluded: Beckett and Pasternak declined to be interviewed (their entries in *Writers at Work* are memoirs of visits to them), and Steinbeck was too ill for an interview (his entry is a selection from his writings). Included were 14 Nobel Laureates (27% of the total sample): prose writers: Saul Bellow, William Faulkner, Nadine Gordimer, Ernest Hemingway, Gabriel Garcià Marquez, Francois Mauriac, Isaac Bashevis Singer, together with poets and playwrights whose works included some prose, Joseph Brodsky, T. S. Eliot, Pablo Neruda, Octavio Paz, Harold Pinter, George Seferis, and Derek Walcott. The total sample was 52 (16 women, 36 men). Although 56% were American, we believe the sample represented generally the working methods of experts who have written imaginative prose (and in some cases other genres) in European languages.

In this section, we test two hypotheses that derive from the Romantic theory of literary writing that we have discussed above.

The first Romantic hypothesis is that the creation of literary art is a matter of inspiration: as if taking dictation from a divine source. The hypothesis presumes an above-mentioned "mind dump" (even if inspired), in contrast to writing as paper-assisted thinking. All but 1 of the 52 writers expressed some theory of what they were doing when composing. A minority described some experience of inspiration (7 used the term, and another mentioned "trance" but not "inspiration"). Edna O'Brian, for instance, said: "When I am working I write in a kind of trance, longhand, in these several copybooks . . . I write in the morning because one is nearer to the unconscious, the source of inspiration" (*Women Writers at Work,* Plimpton, 1989, p. 356).

Near the beginning of each interview, the editors reproduce a page of manuscript by the writer, typed or handwritten: a glimpse of how paper was used in composition. Except for one (a letter to the interviewer), these pages were of imaginative composition. Among these, 92% included least one revision, and in 73% there were five or more revisions. Although this indicates that writers do on general make revisions, these figures may be overestimates, because it is likely that the editors of *Paris Review* selected the manuscript pages that exhibited changes, rather than less-interesting, carefully typed sheets. More acute, therefore, may be what the writers themselves said: all but 1 of the 45 who mentioned anything on the subject said that in at least some of their compositions they either began with a set of notes, or went through a series of drafts, or both. Perhaps the most extreme in his stated lack of dependence on paper as a medium for intermediate results (although only in one novel) was William Faulkner, who said:

> . . . the writer knows probably every single word right to the end before he puts the first one down. This happened with *As I Lay Dying* . . . all the material was already at hand. It took me just six weeks in the spare time from a twelve-hour-a-day job at manual labor. (Cowley, 1977, p. 129)

On the other hand, Faulkner said he wrote *The Sound and the Fury* four times, each one with a different point of view, before he felt he got it right with the fifth.

A different kind of indication that paper helped thinking was that 30 of the 33 writers (91%) who answered a question about whether

new thoughts occurred while they were writing said they did make discoveries, for instance, of characters behaving in ways they had not anticipated.

The second hypothesis that derives from the Romantic theory is that art is the articulation and expression of emotion in a language (Collingwood, 1938). This hypothesis also takes up a proposal made earlier: that prose fiction has a core of meaning, which is emotional, and which, as Opdahl (2002) says, derives in the first instance from the author. The implication is that writers of creative fiction write to resolve inner anguish. We have already tested this hypothesis (Djikic, Oatley, & Peterson, 2006) with the use of the Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francis, & Booth, 2001; Pennebaker, Mehl, & Niederhoffer, 2003). The hypothesis is relevant to our argument here: to investigate whether writers are motivated by negative emotions, known to require extensive processing and resolution, so that writing becomes at least in part thinking about and working through such emotions. In our 2006 article we reported that, as compared with a sample of nine male physicists, a matched sample of nine male writers of fiction from the *Writers at Work* series used more negative-emotion words (including more anger-related, anxiety-related, and sadness-related words) when talking about their work. Being motivated by negative emotions does not necessarily imply that the process of writing cannot be enjoyed in itself. For instance, Brand and Leckie (1988) had 24 professional writers track their emotions while writing something they were working on, and found that positive emotions tended to increase in the course of the process.

In the present sample of 52 writers, 26 said something on this subject of enjoyment. Of these 26, 25 said they did enjoy writing and 1, Georges Simenon, said: "I don't think an artist can ever be happy" (Cowley, 1977, p. 146). Of 18 who said anything on whether writing was a matter of resolving anguish (or something comparable), 16 said that this was the case, although of these, 7 said they also enjoyed writing. Running the LIWC program on the 52 writers in our current sample produced the same results as those of Djikic et al. (2006). As compared with the nine physicists in our previous sample, the writers used significantly more neg-ative-emotion words when talking about their work: $t(59) = -2.62$, $p < .05$ for anxiety; $t(59) = -2.47$, $p < .05$ for anger; and $t(59) = -2.58$, $p < .05$ for sadness. Their writing appears, then, to include thinking about and trying to resolve negative emotions, which therefore become important, perhaps even central, among the multiple constraints to be satisfied.

The main conclusion of the content analyses of interviews confirms, in a group of people who are among the most expert of contemporary writers, the proposal of Hayes and Flower (1986) that writing involves revising: The external memory of paper assists composition. Although we found some references to the phenomenology of being inspired, in general the Romantic hypothesis that artistic writing is principally a matter of inspiration is seriously ailing. This is consistent with research on creativity (see, e.g., Weisberg, 1993), and on other domains of expertise (Ross, 2006). A conclusion from our test of the second Romantic hypothesis supports the idea that emotions of the writers are engaged in the writing of literary prose. Whereas the principal rhetorical problem of nonfiction is to be informative, that of fiction is to offer an experience that is moving. Insofar as stories and novels involve writers' attempts to resolve their own emotions, readers will also tend to enter emotionally into the lives of characters and understand them empathetically (Nussbaum, 1995). As they do this, readers are enabled to explore their own emotions (see, e.g., Oatley, 2004).

Literary Biography of Jane Austen: Portrait of the Artist as a Young Woman

In this section and the next, we explore the idea that writing as thinking was associated with the rise of the novel and short story. Seeds of the European novel are taken to have been sown in the early seventeenth century by Cervantes. They germinated in the eighteenth century (Watt, 1957), but the flowering occurred in the nineteenth century when also the short story emerged as a discernable genre. Arguably, it was not until the nineteenth century that a tradition of multiple drafting of prose fiction arose, in part because until this time paper was expensive. We explore the development of this tradition by two writers who were in its forefront: Jane Austen and Gustave Flaubert.

The literary development of Jane Austen can be read in biographies by Nokes (1997), Tomalin (1997), Shields (2001), and others. Evidence about her writing includes testimony of Austen's family (Austen-Leigh, 1869/2002; Le Faye, 2004), notebooks of early sketches, and drafts of uncompleted novels (Austen, 1993).

An important aspect of Austen's development was the movement beyond the satire she wrote in her adolescence. She was born into a literary family. Southam (2001) says, quoting members of the Austen family: "There was 'the flow of native wit, with all the fun and nonsense of a large and clever family,' conversation 'rich in shrewd remarks, bright with playfulness and humour'" (p. 4). Austen's habit of reading extracts of her writing to her family began early and continued throughout her life. She had read sentimental novels of the period, which contrasted with her morality and her high literary taste. Here, for instance, is a satirical passage written at the age of about 14, from "Jack and Alice," in Austen's notebook called *Volume the First*:

> On enquiring for his House I was directed thro' this Wood, to the one you there see. With a heart elated by the expected happiness of beholding him I entered it and had proceeded thus far in my progress thro' it when I found myself suddenly seized by the leg and on examining the cause of it found that I was caught in one of the steel traps so common in gentlemen's grounds.
>
> "Ah," cried Lady Williams, "how fortunate we are to meet with you, since we might otherwise perhaps have shared the like misfortune" (Austen, 1993, p. 20).

By understatement and juxtaposition she could mock with hilarious derision; a task for her was to develop the satirical humor displayed in these early writings into the irony for which she became known.

In the 1920s, Austen was established as canonical by Oxford University Press and a formidable array of scholars (Sutherland, 2006). Today she is the only pre-Victorian novelist in English who is still widely enjoyed. A venerable theory of why a writer continues to be read is that of Samuel Johnson (1779-1781/2006), who proposed that the reason is originality. Jackson (2006a; 2006b), however, argues that it is hard to test Johnson's proposal in Austen's case because, if one takes any single feature of her writing such as her treatment of moral dilemmas of marriage for women (see Butler, 1975) or her use of free indirect style (see

below), one can find predecessors and contemporaries with the same concerns or style. Therefore, we ask a related question: Is it likely that writing and paper were useful to Austen in development of her distinctive style and other contributions? We consider three problems that she solved.

A first problem was to move beyond the broad satire of Austen's youth and from the genres available in the literary tradition of her time to the irony she displays in *Pride and Prejudice.* When she was 24 (in 1799), she had written three book-length manuscripts. One, called *First Impressions,* was sent by her father to the publisher Cadell. It was rejected. It was an early draft of *Pride and Prejudice* (Austen, 1813/1970). As Southam (2001) shows, this and an early draft of *Sense and Sensibility* (Austen, 1811/1980) were written in an epistolary style, which was popular in the eighteenth century. This style uses the practiced skills of letter writing. It allows the intimacy of first-person point of view and a certain inwardness. Externalization into a manuscript that was submitted but rejected required a solution. The solution involved replacement of the epistolary style by something new. Arguably, this was an important moment in the development of Austen's much remarked irony, which she accomplishes mainly by metonymic juxtaposition (Lodge, 1977). Metaphor and metonymy are two modes of language-based thinking; Jakobson (1988) calls them two poles of language. Whereas metaphor is based on substitution of one mental model for another (a semantic operation), metonymy can be thought of as juxtaposition (a syntactic operation). Whereas metaphor is characteristic of poetry and drama, metonymy is characteristic of prose narrative, which has emerged more recently in historical time. It is—we would propose—more characteristic of multiply drafted prose. Look at the great opening sentence of *Pride and Prejudice,* which uses juxtaposition (Jakobson's metonymy), no longer satirical but subtle: "It is a truth universally acknowledged, that a single man in possession of a good fortune, must be in want of a wife." The telling juxtaposition is between "a single man in possession of a good fortune" and "must be in want of a wife"—between wealth and marriage—when the ideal of marriage already by Austen's time was based on love. It is hard to imagine either the progression from

Austen's early satire to her mature irony, or this juxtaposition of economic success with love, without the externalizations of writing. It is also hard to imagine, without writing, this opening sentence being an initial setup for Elizabeth Bennet's joke in the novel's last-chapter-but-two in response to her sister asking how long she had loved Darcy: "I must date it from my first seeing his beautiful grounds at Pemberley" (p. 332).

A second problem that Austen solved was of how to enable the reader to enter empathetically into the consciousness of a character while maintaining the third-person point of view that was necessary for her irony. Abrams (1953) has pointed out that, in literary fiction in the West, problems of this kind (which may be called rhetorical) became primary during the Renaissance. In the works of Dante, Petrarch, Cervantes, and Shakespeare, we see them being solved so that not just characters in a story, but the readers of the stories, experience emotions (other than pity and fear), come to realizations, and understand more deeply self and others. Part of Shakespeare's solution, for instance, was to enable members of his audience to create from cues afforded by actors a kind of dream: a model of selfhood in the social world (Oatley, 2001, 2004).

Part of Austen's solution was free indirect style. Lodge (2002) says, "most novelists today would probably not recognize [this] term" (p. 45), but the style has become widespread. Lodge describes it as giving the reader access to a character's consciousness. The example he offers is from Austen's *Emma* (1816/2003) in which the protagonist's attempts to match-make for her friend Harriet bring about, instead, a proposal of marriage to Emma herself: "The hair was curled, and the maid sent away, and Emma sat down to think and be miserable.—It was a wretched business . . ." (p. 106). If a writer were to express the last part of this in a first-person narrative such as a letter, it might be rendered: "I sat down and thought: 'It is a wretched business.'" At its most typical, free indirect style dispenses with quotation marks, transposes the present tense of direct speech into past tense, and changes first person into third person (cf. Banfield, 1993). The effect is that: "We overhear Emma's thoughts," and because some sentences lack main verbs, there occurs a "further blurring [of] the distinction between author's voice and character's voice" (Lodge, 2002, p. 48). We (the authors of the current article) would go further: With this style it is often unclear whether certain thoughts are the author's, a character's, or the reader's. Such thoughts hover delicately in a mental space in which the reader enters not just the physical world of the novel, but its mental world. Austen was well read. Her brother Henry wrote: "It is difficult to say at what age she was not intimately acquainted with the merits and defects of best essays and novels in the English language" (Southam, 2001, p. 8). She may have discovered free indirect style from her reading. She described in a letter her reading of Mary Brunton's *Self-Control* (1811) in which this style is used extensively. We propose that having tried out drafts of novels in epistolary style, she adopted a new mode that included free indirect style.

The third problem that Austen solved was to develop what we may call the novel of social explanation, and to link such explanation to an emotional issue: the growth of love. Let us put it like this. In the history of the detective or mystery story we can see distinct moments of invention of the genre, for instance Edgar Allen Poe's short story, "Murders in the Rue Morgue" (1841/1967), and Mary Braddon's novel *Lady Audley's Secret* (1862/1985). In a story of the mystery genre, a crime occurs and a person in the role of detective follows a protracted trail of clues to solve it. Thirty years before Poe, Jane Austen used—perhaps invented—a comparable idea, but in the social rather than the forensic domain. Graesser, Olde, and Klettke (2002) have argued that narrative comprehension always contains an element of explanation at a local level, because readers must understand why characters acted in the way they did. In Austen's stories, this issue is raised to a more global status. People sometimes behave oddly in ways that are emotionally upsetting, so the reader's desire to know why they have done so can motivate a story. In *Pride and Prejudice,* for instance, Darcy is rich and presentable, the very emblem of the romantic hero, but early in the story he is rude at a ball, and in particular he is rude about Elizabeth. Only through discussion and further incident is this behavior comprehended. Its gradual explication underlies the growing understanding between Elizabeth and Darcy, which becomes the basis of a love quite different from the romantic idea of falling in

love, which inevitably is based on projections. Opdahl (2002) argues that *Pride and Prejudice* is evidence for his idea that emotion is a third mental code (alongside verbal and imagistic codes): That it can function in this way depends upon its being understood among a wide range of readers. We would propose that Austen was among the first to show how reading novels is about the empathetic understanding of emotions. As Woolf (1925/1966) put it: "Jane Austen is thus a mistress of much deeper emotion than appears on the surface. She stimulates us to supply what is not there . . . something that expands in the reader's mind" (p. 148). This kind of emotion becomes part of the tradition of the nineteenth century novel.

Pride and Prejudice, set against the ruins of Elizabeth's parents' romantic marriage, is a love story, as Scheff (1997) has pointed out, of a kind that is rare in literature. Love occurs not at first sight, but develops as the story does. As social explanations are revealed, the reader experiences in parallel with the two protagonists their growing understanding of each other. In creating narratives of explanation (social or forensic), there are advantages in maintaining consistency by committing events and utterances to paper rather than holding them less reliably in internal memory. (Genres of explanation are absent from oral traditions such as epics; compare also Olson's, 2001, idea that for the most part writing is a kind of quotation.)

Austen's development enabled her to write novels in which the reader enters the minds of characters in their intimate concerns, with a combination of emotionally empathetic identification and ironic detachment that is difficult to accomplish in everyday life. In terms of the two-process theories of mind discussed above, we can hypothesize that metonymic tropes allow a written story to be accepted into the language layer of the mind, and to enter almost directly into the layer of intuitions and imagination by processes of associative priming (see Hogan, 2003b). We may hypothesize that free indirect style operates in a comparable way: Because thoughts written in this style are not attributed to a speaker and may not be grammatical, they can float in the mind and be associated with the author, with a character, and with the reader's intuitions. The effect of both these kinds of operation is to enable an intimacy between the reader and a novel's author or protagonist, even when a third-person point of view is used.

For Austen, we know that there were juvenilia from which we see later developments, and we know that there was at least one version of *Pride and Prejudice* written in a quite different way than the version that we have. Whereas many eighteenth-century novels of the nonepistolary kind are rather rambling, as if they are first drafts, Austen's published novels are more tautly constructed. As with Shakespeare (Jones, 1995), so for Austen, the surviving evidence is simply two successive drafts. Other drafts do not exist. Thus our suggestion that composition was aided by externalization onto paper remains just that: a suggestion. By contrast, as we explore in the next section, Gustave Flaubert carefully preserved some 30,000 pages of his plans, notes, and drafts.

Gustave Flaubert's Manuscripts: Génétique Textuelle

Gustave Flaubert is one of the most influential writers of prose fiction. Understanding his paper-assisted thinking rests on what the French call *avant-textes*: drafts, notes, and other kinds of document. Study of such *textes* has progressed for some 30 years under the rubric of *génétique textuelle*, and a collection of translations into English has been published: Deppman, Ferrer, and Groden (2004). Just as Arnheim (1962) studied the series of Picasso's composition studies, sketches of individual figures, and seven photographs of successive stages of the work in progress, that went into making *Guernica* so, more recently, studies of literary writing have been made from *avant-textes*.

As Di Biasi (2002) explains, Flaubert developed the first explicit theory of writing prose fiction. He proposed that style cannot be separated from content, that it is a way of seeing things, and that a line of prose should be like a line of verse, incapable of being paraphrased. He thought the novel had only just been born, and was awaiting its Homer, perhaps himself. The style of this newly born genre:

> . . . would be as rhythmical as verse, as precise as the language of science, and with the undulations, the humming of a cello, the plumes of fire, a style that would enter your mind like a rapier thrust, and on which finally your thoughts would slide as if over a smooth surface . . . (Williams, 2004, p. 167).

Flaubert problematized meaning, so that readers were encouraged to think, and he emphasized the need for the writer to remain impersonal: One should not write *oneself.*

For writers, what emerged from the movement of modernism that began with Flaubert was the explicit realization that writing can be the creation of language that the reader can take as her or his own, which at the same time makes the simulation-dream of the story come alive, and which encourages reflection. Two features of prose fiction that Austen developed—irony, which allows a stereoscopic view of characters, and free indirect style, in which thoughts take on a certain independence—were further developed by Flaubert. Significantly, too, for modern writing, Flaubert's style became much more spare. He left things out. Really, what he, and subsequently Chekhov and Hemingway, accomplished was psychological. The modern style is described by Chekhov in a letter to Suvorin of 1 April 1890: "When I write I rely fully on the reader, on the assumption that he himself will add the subjective elements that are lacking in the story" (Yarmolinsky, 1973, p. 395). Hemingway continued the idea: "I always try to write on the principle of the iceberg. There is seven-eighths of it underwater. Anything you know you can eliminate and it only strengthens the iceberg" (Plimpton, 1977a, p. 235). Psychologically we can understand these effects in terms of the reader having to imagine the story world from scripts and other inferential devices (cf. Wegman, 1985), from the prompts of linguistic cues that the writer provides within the blank space of the page.

Flaubert thought his notes and drafts would show "the complicated machinery [he used] to make a sentence" (Williams, 2004, p. 166). As Di Biasi (2002) explains, the machinery consisted of several phases.

First came what Flaubert called the "old plan," which would change as the project developed. In this stage, Flaubert would daydream around his subject, imagine his characters and their psychology, imagine key scenes, choose locations, and perhaps do some research such as reading, visiting places, interviewing. He continued until he could see the story in his mind's eye.

Second, Flaubert wrote what he called scenarios, which contained main lines of the narrative but in a very unfinished fashion, with semiformed phrases, and with names and places signified by x, y, z. In this way he explored vast territories and created, as it were, a set of signposts.

Flaubert's third stage was to write expanded drafts. Sentences and paragraphs started to take shape as he explored many possibilities of the narrative. The pages of these drafts were thick with corrections and insertions between the lines and in the margins. At this stage he might do more location work, less to check for accuracy than to see scenes through the eyes of each of his characters.

In the fourth stage, the labor of style began. In a series of drafts, elimination occurred: a page might be reduced to a phrase, and large parts of the expansive drafts were deleted. At this stage also, the text was subjected to the test of reading aloud. Further drafting occurred until everything fitted together, like a musical score, to be heard by an imagined reader.

Fifth, a final draft was produced, with no further corrections.

Flaubert described how he thought the artist recapitulates human history during the phases of creation:

> At first, confusion, a general view, aspirations, bedazzlement, everything is mixed up (the barbarian epoch); then analysis, doubt, method, the arrangement of the parts, the scientific era—finally he returns to the initial synthesis executed more broadly (Williams, 2004, p. 167).

In *Madame Bovary* (1857/1964) Flaubert's paper-assisted thinking enabled readers to experience the world as seen through the eyes of Emma Bovary, for instance, in her boredoms and excitements, and at the same time ironically, as if looking over her shoulder, to see, for instance, her vulgarity (cf. Lubbock, 1921). Arguably, this kind of view could not have been reached without extensive paper-assisted externalization.

For a more detailed understanding of the process, let us consider Flaubert's "A Simple Heart" (*Un Coeur Simple*), a short story about "housemaid Félicité . . . envy of all the good ladies of Pont-l'Evêque (Flaubert, 1877/2005, p. 3). Félicité loves, in turn, the two children of her widowed mistress, a nephew who goes to sea, and a parrot, all of whom are taken from her by death. The story depicts these relationships and losses. It draws on scenes from Flaubert's own childhood, and it unites several of his last-

ing obsessions: the nature of maternal love, the possible superiority of uneducated people to members of the bourgeoisie such as himself, the relation of the profane to the sacred.

The last section of the story (Section V) is just two pages. It concentrates on the feast of Corpus Christi, in which the sacrament is carried through the streets of Pont-l'Evêque and stops at a number of elaborately decorated outdoor altars, on one of which, outside the house where Félicité lies ill in bed, is the stuffed parrot that she has donated. The procession reaches the altar beneath her window. We consider the story's final paragraph, as treated by Debray Genette (2004). Here it is.

> A blue cloud of incense was wafted up into Félicité's room. She opened her nostrils wide and breathed it in with a mystical sensuous fervor. Then she closed her eyes. Her lips smiled. Her heartbeats grew slower and slower, each a little fainter and gentler, like a fountain running dry, an echo fading away. And as she breathed her last, she thought she could see, in the opening heavens, a gigantic parrot hovering above her head (Debray Genette, 2004, p. 73, translation by Baldick, see Debray Genette, note 4).

We propose that, in this translation, the penultimate sentence misses something of the author's intention (see below). Flaubert's words are: "*Les mouvements de son coeur se ralentirent un à un, plus vagues chaque fois, plus doux. . .*" For reasons given below, this might better be rendered: "The movements of her heart slowed down one by one, each time more vague, more soft . . ." (our translation). We also offer the translation by Whitehouse of the final sentence which, although less literal, shows Flaubert's intention for those readers who are neither Catholic nor versed in hagiography: "With her dying breath she imagined she saw a huge parrot hovering above her head as the heavens parted to receive her" (Flaubert, 1877/2005, p. 40).

The story took Flaubert 6 months to write—from mid-February to mid-August, 1876—at least some of which time, as we are told in his correspondence, he was in his shirtsleeves, writing through the night. The story comes out as 38 printed pages. What was Flaubert doing all this time? He was thinking using the medium of paper, in the manner explained by Di Biasi (2002), as discussed above. Extant are "three plans or résumés . . . three scenarios, a subscenario, two rough drafts, two fair copies, and the

copyist's manuscript" (Debray Genette, 2004, p. 72). The first plan, entitled "Parrot," dates from the 1850s, more than 20 years before Flaubert started to write the story in earnest. At least one scenario has been lost. Debray Genette gives to the plans, scenarios, and drafts, the collective term, "Occurrences." She discusses those parts of all 12 of them that concern the final paragraph of the story. We cannot here describe the whole of this sequence, but the following is representative. The idea of a woman who "dies in a saintly fashion" and the idea that "Her parrot is the Holy Spirit" are present in the first plan (first Occurrence, Debray Genette, p. 74). Flaubert's thought, which is made explicit in the story, is that the Holy Spirit is usually represented by a dove, but why not by a parrot? This is an idea that educated people would no doubt find comical. By the third Occurrence, Flaubert has written the phrase "parrot hovering above her head" (Debray Genette, p. 79), and this remains unchanged through to the final draft. One evident function of paper is that when a satisfactory phrase is found it can be retained. For Flaubert, it seems likely that this phrase, produced by the sentence-generation process from his first plan, represented a beacon toward which he could steer.

Debray Genette (2004) makes it clear that Flaubert has to think through at least three substantial problems to accomplish his final paragraph. The scene (a) must go beyond the many published clichés of death, and beyond his own previous scenes of death such as that of Emma Bovary, (b) it needs to suggest the profane, physiological, process of dying, and (c) it must also suggest the sacredness of the death of a saintly person.

The fifth Occurrence is a scenario crossed out with an X. In it Flaubert tries out the idea of Félicité as a saintly person with the phrase: "the acceleration of her chest of this heart (*coeur*) which had never beaten for anything ignoble" (Debray Genette, 2004, p. 82). A critical word is "heart" (*coeur*), but Debray Genette argues that Flaubert does not recognize its significance until the eighth Occurrence. In the sixth Occurrence, he writes that Félicité "was flat like a statue lying on a tomb" (p. 85), with a smile, nostrils breathing, lips vibrating. In the seventh Occurrence, a plan or *résumé* of five parts, the paragraph is indicated in a four-line list of com-

ponents of the story's final section, Section V, as follows: "Corpus Christi / <death throes> / ~~death~~ of F / vision of the parr" (p. 81).

The eighth Occurrence is an expanded rough draft. Debray Genette (2004) reproduces more than 60 lines of it that relate to the final six-line paragraph. Only now does Flaubert start to compose most of the sentences that will appear in this paragraph, but there are also many crossings out. Some rhymes such as "*perroquet qui etait*" are underlined. There are two rough columns. In the left-hand column there are physiological expressions such as "in the supreme nausea." The image of the statue is also there. In the right hand column are many images: "among between the radiant clouds to the right of the son to the left of the father" . . . "the last lines of life were cast off" . . . "the rupture of soul and body" . . . "the vibrations of a string which has been plucked" (Debray Genette, p. 90). Flaubert is drawn to such images, but will eliminate them as inappropriate to his protagonist. In the ninth Occurrence he will write and delete "like a statue on a tomb:" too stony to suggest Félicité's sensuality (breathing in the incense) or her vision. In these choices, elimination of the kind that would later be extolled by Hemingway occurs literally. If the reader is to be prompted to reflect on certain themes, a range of them may be thought about by the writer. Images of "a fountain running dry, an echo fading away" are created in the eighth Occurrence. They are pastoral, not inappropriate to Félicité, and they are retained.

It is in the eighth Occurrence that Flaubert has the thought that will be the key to his concluding paragraph. It is likely that it was suggested to him by the word "heart" (*coeur*) that he wrote in the fifth Occurrence. It is the exact word—the *mot juste*—that unites the two aspects of Félicité's death with which he has been struggling: "partly sensual, even sexual, and partly sublime" (Debray Genette, 2004, p. 87.) In this draft it is written in a sentence joined by a long line that runs from the phrase "movements of the heart" in the right-hand column to the left-hand column 13 lines further down. Here is the whole sentence, including the joining line and deletions: "The ~~beating~~ movements ~~of her heart~~ of the heart —— slowed down, one by one, more slowly, each time ~~each time further apart~~ more soft" (Debray Genette, p. 89, our translation). Without needing to say

anything else, the word *heart* represents the union of the profane (physiological) and the sacred (inward and spiritual), and gives the story its title: "A Simple Heart" (Un Coeur Simple).

Flaubert's methods offer a large leap beyond the idea of Hayes and Flower (1986) of writing as planning, sentence generation, and revising. If novices in the Hayes and Flower (1980, 1986) studies mainly tinkered with words and sentences, the grave danger for experts is of tinkering merely with drafts. This would be a restriction of thought imposed by what has already been externalized onto paper. By means of his plans, scenarios, and expanded drafts, Flaubert prompted in himself an opposite movement: expansions, images, alternatives that enabled the larger-scale "parts" (as he called them) such as scenes, sections, characters, and plot, to be conceived and arranged. Even if writers do not engage in Flaubertian expansions, larger-scale considerations are essential. Their identification is part of the skill of editors (e.g. Hodgins, 1993; Stein, 1999), who are less constrained by the words that have been labored over, but whose input of thought to a writer is also prompted by drafts committed to paper and submitted to them.

The hour or two it takes to read "A Simple Heart" is made worthwhile by the six months of thinking Flaubert devoted to it. By the time the final fair copy is achieved for the last paragraph of the story, all moral judgments that occurred in earlier plans and scenarios such as "in saintly fashion," have been deleted. Everything is apparently simple, like the simple heart. The paragraph draws the story to an end, and for the reader it is profoundly moving. Now questions such as whether the death and the vision of Félicité are physiological *or* spiritual, or whether the story is naturalistic *or* ironical, are no longer at issue. By means of his expansions, repositionings, and eliminations, Flaubert has thought his way through to what Debray Genette (2004) calls "an exact incertitude" which is able "to close the plot, and to open reflection" (p. 93).

Conclusion

The task of a writer of imaginative prose or poetry is to offer the reader linguistic cues to start up and sustain a simulation dream (Oatley,

1999). In order to prompt the simulation to run, they must invoke imagistic and emotional processes. In this way, we can see literary writing as offering models for the reader to construct that can be successively and sometimes even simultaneously experienced partly in language and partly as emotionally imbued intuition. As techniques of novels and short stories have been developed during the last 200 years, they have enabled new ways for sentences to enter via the language layer and cue experience and intuition about human action and interaction. Imaginative prose fiction, the product of long and deep thought by its authors, has enabled empathetic understanding of emotions, the honing of irony, and possibilities for the growth of consciousness, that we suggest would have been far more difficult to accomplish without the augmentation of thinking by writing.

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