

## 16 | Whence Literature?

Though at the voice much marvelling; at length,  
Not unamazed, she thus in answer spake.  
What may this mean? language of man pronounced  
By tongue of brute, and human sense expressed?  
The first, at least, of these I thought denied  
To beasts . . .

--John Milton, Paradise Lost, IX (Eve to the Serpent)

So far as we know, all human cultures have "done" literature. That is, they have created and enjoyed some form of verbal art. Why?

Why do we do any kind of art? One popular answer these days is: we are genetically programmed for art and literature. The arts enhance our evolutionary task of surviving and reproducing. Writers from the point of view of evolutionary psychology make a persuasive claim. All cultures, past and present, make and enjoy some form of art. All cultures, past and present, make or enjoy some form of literature: story-telling, play-acting, even sitcoms.

As a cultural universal, literature answers to the Chomsky-Freud argument from the right side of the Alp (that I mentioned at the very beginning of this book): if something occurs universally among

humans, if it appears early in life and without deliberate teaching or other environmental cause, then it must be innate in our brains. Where else would it come from?

But before we can ask, Do we inherit literature?, we face a preliminary question.

Do we inherit language?

Noam Chomsky applied the universality argument forcefully to language, shaping the terms of the ensuing debate.<sup>1</sup> All humans have language, and only humans have language. Chomsky and his associates, moreover, have convincingly shown that all languages share certain fundamental principles ("Universal Grammar" or UG).<sup>2</sup> Further, we all learn some version of these principles, some one language, without being specially taught. And we learn (say the Chomskyans) on the basis of only the fragmentary, special ways that adults speak to children ("motherese"). There is "paucity of input."

We must therefore, the argument goes, inherit a specific language ability. In early writings, Chomsky posited an innate "Language Acquisition Device," an LAD, a structure or organ in our brains. This LAD establishes certain linguistic principles in the brain, Universal Grammar. UG, in turn, offers certain options (like object-after-verb versus object-before-verb). Then the particular linguistic environment in which the child grows up sets those options (like switches) this way or that. We end up with the version of Universal Grammar appropriate to English or Mohawk or whatever other language we learned in childhood.<sup>3</sup>

Some evidence supports Chomsky's claim of an LAD. We humans do have a critical period for learning language, and we do need relatively little teaching from our environment. Researchers have found at least one gene (FOXP2) whose malformation correlates to a particular language defect. FOXP2 acts on specific regions of the brain during fetal development, and scientists have traced changes on FOXP2 that seem to have been important in differentiating us from our languageless cousins, the chimpanzees.<sup>4</sup> One can trace some language deficiencies (Williams syndrome, for

<sup>1</sup> Chomsky, 1988.

<sup>2</sup> Pinker 1994, chs. 4–7, provides a clear, readable account of UG.

<sup>3</sup> Baker 2001. Cinque 1996; 1999. For an account for general readers, see Fowler 2002.

<sup>4</sup> Enard et al. 2002. The claim is, to be sure, contested.

example) through families. Pretty clearly, we inherit either language ability itself or, an easier hypothesis, a bias for learning language.

Chomsky's argument was strong on the linguistics (as we would expect from this great linguist). It dealt with the most complicated abilities such as understanding our incredibly subtle and intricate English verb system. But his argument said nothing about the brain mechanisms involved. It simply posited them. Nor does it suggest any conceivable evolutionary or genetic path by which an LAD came into being (although there is the FOXP2 gene). Our closest primate relatives have nothing like an LAD. Given these limitations, rival theories have abounded.<sup>5</sup>

James McClelland, David Rumelhart, and their associates have put forward another basis for our language ability that has gained wide acceptance among neuroscientists.<sup>6</sup> This group devised computer configurations (using parallel distributed processing or PDP) called "auto-association networks" or "neural networks." These closely mimic the way neurons process information, with axons from one neuron connecting to many others and the voltages that input to any given neuron being summed. (as in ch. 2). Remarkably, these auto-association networks can learn vocabulary. For example, one network learned to associate words like "ceiling," "walls," "desk," with the different rooms in a house. It could, after training and learning, associate a series of features like "desk," "telephone," "bookshelf," with an "office," and recognize that these did not go with "oven," "bathtub," "bed," or "dresser." It could then "know" that "ceiling" plus "oven" signaled that we were very likely in a "kitchen" and not in an "office."<sup>7</sup>

By sophisticating these systems, enlarging them and adding layers of ancillary networks, a neural network can even learn a rudimentary grammar. That is, it can remember an independent clause so as to get the verb right even if a dependent clause intervenes. For example, the network can distinguish between similar (if unlovely and complicated) sentences: "Boy who boys chase chases boy" and "Boys who boys chase chase boy." The network has to remember that the subject of the main

<sup>5</sup> The strengths and weakness of the various positions are nicely analyzed by Almer 2003.

<sup>6</sup> McClelland, Rumelhart and the PDP Research Group 1986a, 1986b. For a particularly clear and brief exposition, see Spitzer 1999.

<sup>7</sup> Rumelhart, Smolensky and McClelland 1986, 7–57.

clause (' Boy[s] chase[s] boy') is singular in one sentence and plural in the other and adjust the ending of the second verb accordingly. And the network can do this if it is set up to "mature." It has to begin with simple inputs (like the sentences we speak to children) and then move on to recursive sentences, those that have embedded clauses. To handle these sentences-within-sentences, the system has to "grow" more working memory to hold the additional syntactic information. The task requires the network "brain" to develop as childrens' brains do.<sup>8</sup> Further, by studying the linguistic deficits of patients with brain damage, neurologists like David Plaut and Stephen Nadeau have been able to indicate brain regions and systems that seem actually to be involved in such language-learning networks.<sup>9</sup>

In the PDP theory, the brain need inherit no special linguistic ability, no LAD. Each of us learns to speak language through regular neurons and general cognitive abilities. After learning language in a certain environment, we have the symbols of language and, ultimately, the syntax, stored as specialized representations distributed widely in the brain. This "connectionist" theory is strong on the brain science, makes no special evolutionary demands, but has not yet (I think) dealt fully with the complexities of human syntax.

In the last half-dozen years, coming from the work of Jerome Bruner and Michael Tomasello, another group has developed another theory about the origins of language, called "functional" or "cognitive" linguistics. These theorists proceed by carefully observing both human infants and non-human primate infants. They note that human children are great imitators. They note, too, that children's language closely reflects the language used by the caregivers the children grow up with. For example, children limit their use of a given verb to constructions they have actually heard. Only after hearing a number of different verbs used in a particular construction, will they use a verb they have not heard before in that construction. These theorists argue that there is no overarching knowledge of "rules" (grammar) as in the Chomsky model, but a learning based entirely on the social

<sup>8</sup> Bates and Elman 2000, 129.

<sup>9</sup> Nadeau 2000, 2001. Nadeau and Gonzalez-Rothi 2004.

interactions between the infant and its caregivers. And we know that we humans, like other primates, are intensely social.

Human infants have two special abilities. They are able to infer changeable states of mind in the adults around them, and they are able to find patterns and categories in what they experience. They are thus able to tie aspects of language (verbs, say) to intentions and actions of their caregivers. At some point, hominids became able, through this kind of learning, to pass on pieces of "culture" to the next generation, leading to a vast acceleration of cultural evolution. This culture can include complex grammatical practices. The human interactions involved in the ordinary rearing of a child thus create what appears in adults as a universal human symbol-using capacity of extraordinary complexity.

Terrence Deacon has speculated, along similar lines, that language and the ability to use language must have co-evolved. As a rudimentary language, one that is merely symbolic, came into being, there came with it the ability to do rudimentary rules and the ability of children to learn those rules. Then, argues Deacon, as generation succeeded generation, language had to pass through a bottleneck. New children had to learn it quickly and easily. There would have been selection for user-friendly linguistic rules, rules that fit the human mind as it had evolved up to that point.<sup>10</sup> (But no such part-languages have ever been found.)

Like the neural network theory, functional linguistics does not require any radical evolutionary step. But, like neural network theory, it tends to explain the use of symbols only. It speaks less clearly of the complexities of human syntax.

No one of these theories, then, has been able to trump the others outright. And our question is not, Is a capacity for language inherited?, but, Is a capacity for literature inherited?

Over the decades, Chomsky and his many associates have tried to reduce the assumptions required to explain humans' language ability (a project now called "the minimalist program").

<sup>10</sup> Deacon 1997.

Language ability led, most agree, to the "Great Leap Forward" in human evolution, the explosion of art, technology, and migration some 50,000 years ago. How can we account for this rapid change?

In 2004, Chomsky has speculated that "The simplest account . . . would be that the brain was rewired, perhaps by some slight mutation, to provide the operation `Merge.'"<sup>11</sup> "Merge," Chomsky defines as a primitive mental operation that takes so-and-so many objects already constructed and constructs from them a new object, in the simplest case, the set of those objects. If one merges again and again ("iterates"), one can create, potentially, an infinite number of objects (like the infinite number of sentences). "Any sentence is an example. Take `the man read the book,' and bracket it into its constituents, skipping details:

[[the man] [read [the book]]]

That's the result of Merge of `the' and `man,' `the' and `book', `read' and `[the book],' etc."<sup>12</sup>

Only one individual need have had this slight mutation for "Merge" to enter the genome and ultimately to predominate because of the great linguistic advantage conferred. Processes of growth (like PDP learning) or evolution would then bring about as their end result, the range of what is normal in a given organism. Thus, individuals could begin with the genetic capacity for "Merge" plus a symbolizing capacity (present in non-human primates and other animals) plus changes in larynx and pharynx and end with a normal human's language with universal grammar.

Literature, however, is something more complicated than ordinary language. "Merge" gives us language, but literature is language plus. Plus what?

Do we inherit literature?

All human cultures, so far as we know make and enjoy literature and have always done so. Is therefore our propensity to make up literary language and to tell stories and listen to them inherited? After all, as V. S. Ramachandran dryly points out, "Every culture that we know of has some form of cooking, however primitive. (Yes, even the English.) Yet one would never argue from this that there is a cooking module in the brain specified by cooking genes that were honed by natural selection."<sup>13</sup>

<sup>11</sup> Chomsky 2004a.

<sup>12</sup> Chomsky, Noam. "Query re Hauser, Chomsky, Fitch 2002." E-mail to the author 23 August 2004.

<sup>13</sup> Ramachandran and Blakeslee 1998, 184.

Do we have special modules in our brains, perhaps innate modules, that enable us to do literature? Or is it just part of some general human ability? I believe that what literature required was one specific instance of "Merge," namely, that which puts a mind between a statement of fact and the speaker:

[I think [[the man] [read [the book]]]]

However we acquired language in evolutionary time, we humans now acquire, early in life, the ability to put a mind between our own minds and the world. Instead of being able to say only, "Woolly mammoth coming," we became able to say, "Fred Flintstone think woolly mammoth coming." We thereby became open to history, to pretense, and to deception. Instead of being limited to the factual statement, "Cassio had sex with Desdemona," we became able to say, "Iago said that Cassio had sex with Desdemona." And, "Othello believed Iago when he said that Cassio had sex with Desdemona." And even, "Shakespeare wrote that Othello believed Iago when Iago said that Cassio had sex with Desdemona." We can bracket an action and make a pretense of it or a play (in both senses). We can go on to plays of plays: "Laurence Olivier made a film of the play that Shakespeare wrote in which Othello believed Iago when Iago said that Cassio had sex with Desdemona."

Something made language and merging a mind into a factual statement and therefore literature possible. But is there more to it than just language? Is there a special literary intelligence?

Surely, we do inherit some forms of intelligence.<sup>14</sup> (I am thinking of musical intelligence and the often-cited example of the many musically talented members of the Bach family.) Skill with language may be one of those inherited intelligences. Whether that skill expresses itself as writing literature, though, or writing critical essays about literature or in political speeches or advertising or journalism seems to me wholly a matter of circumstance--of environment. The creation or appreciation of literature calls for more than a possibly inherited language skill. But what more?

Critics with genes

<sup>14</sup> Gardner 1999.

"Why literature? It's in our genes." Literary critics have seized on this evolutionary answer because it makes literature sound awfully good. I quote a distinguished theorist:

I argue that (1) literature, whether encountered in live performance or in textual or electronic recording, can challenge and thus enhance our brains' vital capacities for expression, communication, representation, and signification and that, therefore, (2) the protoliterary experiences of some early humans could, other things being equal, enable them to outdo their less imaginative rivals in the biological competition for becoming the ancestors of later men and women.<sup>15</sup>

And here is another: "Literature . . . in contrast, facilitates changes in perception or in the self in its relationship with others, thus enhancing the survival and reproductive ability of the group."<sup>16</sup> I could instance many more, all coming from able critics who have read deeply in cognitive science.

For those of us who prize literature, these large claims make literature a Good Thing. They give it tremendous value and importance. Literature expands our brains' "vital capacities" for communication, planning, cooperation, reading the minds of others, and all kinds of worthy abilities. It adds to our "survival and reproductive ability." And, let me note parenthetically, this argument gives teachers and theorists of literature, like me, a convincer for the legislators and boards of trustees who reluctantly pay our salaries. We are unprofitable humanities professors who are competing in the budget with scientists who bring in grant and contract money. What we do seems arcane, frivolous, unmanly, and useless. We need some kind of persuader.

The evolutionary argument would help us. The trouble is, we don't know that any of this neo-Darwinian claim is true. We don't know that literature enhances our brains' vital capacities. We don't know that protoliterary experiences like "Fred Flintstone think woolly mammoth coming" made some people's genes more successful. We might like to think that literature does all these good things, but do we have any proof?

We do have some universal behaviors that, like literature, had to occur with or after the development of language. Gossip, for example. All humans chatter about other humans. It has been suggested that gossip serves for us the same socializing purpose that picking bugs off their fur serves

<sup>15</sup> Hernadi 2001, p. 56.

<sup>16</sup> Miall 2001, 417.

our kindred apes. Verbal gossip has an obvious adaptive function. It helps us know and remember who outranks whom, who is good for a favor, or who is likely to be hostile. In general, gossip serves as a mental Rolodex of the people around us. This knowledge enables us to survive in a complex social environment as all good anthropoids must. Language for gossip obviously conferred an evolutionary advantage on those primates that developed it--if the tendency to gossip is inherited.

Steven Pinker allows for an inheritability for literature when he says, "The psychology of the arts is partly the psychology of status."<sup>17</sup> To create or appreciate the "right" kind of art gives one standing in our primate community. And that social standing would confer some advantage in biological survival and reproduction.

In fairness, I should point out that our neo-Darwinian theorists usually state these propositions conditionally. They are only hypotheses: "can," "could," "may have." But how could one prove these things true or false? Noam Chomsky has dismissed this kind of argument from desirable characteristics as a Just-So story, like Kipling's fanciful explanations of how the leopard got its spots or the elephant its trunk. Is he right? Can we do no more than guess at whether telling stories enhanced those hunter-gatherers' chances of passing on their genes?

Yes, we inherit a propensity for literature

A number of neuroscientific thinkers, coming, in particular, from the perspective of evolutionary psychology, support the idea that a propensity for literature is inherited. Edmund T. Rolls, for example, writing on emotion, concludes that, because we humans exist in complicated social groups, we need to be able to guess others' emotions in complex situations. That ability takes on considerable evolutionary value. That, he suggests, is why we humans have made emotions and the imagining of others' emotions into the stuff of fiction, drama, movies and poetry and why a capacity for literature must be inherited.<sup>18</sup>

Although Rolls arrives at his speculation from a skillfully detailed treatment of emotions in the brain, he has offered a very simple answer. Indeed, if you ask students why people do literature,

<sup>17</sup> Pinker 1999, 522.

<sup>18</sup> Rolls 1999, 283-4.

what's the point?, they usually come up with some form of this answer. Literature lets us practice living. Literature serves as a kind of emotional or moral gymnasium.

In this vein, Ellen Dissanayake suggests that the arts develop our ability to make something special. When we "do" art, we single one thing out from the stream of experience, and natural selection will favor those who have this proto-artistic ability. Art therefore, she argues, has evolutionary value.<sup>19</sup>

But does this exercising of the brain sufficiently beef up our surviving and reproducing for an evolutionary advantage? Would humans who do literature come to dominate the gene pool? And those who do not enjoy literature drop out? I think not. I know a number of neuroscientists and physicians who do not care for literature at all, yet they are phenomenally successful as humans who (in Freud's famous test) work and love. In America, our most successful politicians have tin ears.<sup>20</sup> (John F. Kennedy, when asked what was his favorite music, replied, "I think 'Hail to the Chief' has a nice ring to it.")

Psychologists John Tooby and Leda Cosmides have put forward the most steady and sophisticated form of the evolutionary psychology position. They have stated that literature confers an evolutionary advantage with even greater care and force than the purely literary theorists. I hope the table below states their position accurately:

1. The ability to "simulate" situations (to imagine them without acting on them) has great value for humans both in survival and reproduction. This ability to simulate seems to occur innately in the human species. We evolved the "association cortices" in our large frontal lobes for just this purpose. [In this book, I too have stressed the importance of "counterfactual" thinking, in, for example, chs. 4 and 5.]
2. All cultures create fictional, imagined worlds. Humans find these imagined worlds intrinsically interesting.
3. Responding to imaginary worlds, we engage emotion systems while disengaging action systems [as we do in dreams--we saw this in ch. 6].
4. Humans have evolved special cognitive systems that enable us to participate in these fictional worlds. We can, in short, pretend and deceive and imagine.

<sup>19</sup> Dissanayake 1992; 2001.

<sup>20</sup> Apple 1998.

5. We can separate these fictional worlds from our real life experiences. We can, in a key word, decouple them.<sup>21</sup>

It is these last two points, say Tooby and Cosmides, that provide the evolutionary basis for our predilection for literature. "This decoupling allows us to solve problems by supposing and by reasoning counterfactually . . . [P]ossible outcomes [can be] evaluated, without the risk that either the counterfactual premise or any conditional downstream inferences will be stored in our encyclopedia of world knowledge as unqualifiedly true."<sup>22</sup>

Fiction contributes to adaptation, they suggest, by developing these special counterfactual abilities of the human brain. Our primate cousins do not share these abilities. But human beings became able, somehow, to use information based on relationships that were only temporarily or locally true. Other species can only use relationships among things that are true all the time.

We humans can use contingent information. But this ability creates a problem. We have to decide when a certain piece of information is relevant and when it isn't. We need to understand the boundaries within which a statement of fact applies or doesn't apply. Erroneous or deceptive information could be deadly if taken as true.

To decide when information is apropos, Tooby and Cosmides continue, we develop cognitive firewalls. We learn to type and categorize information through meta-representations that mark a sentence we are reading as to time, place, and source. We learn a scope syntax. We become able to label the statement, "Call me Ishmael," as sometimes a command in the real world and sometimes a sentence in a fictional world that need not be obeyed. We need not act (Kant's "disinterestedness").

Art serves, from this point of view, to help us develop and rehearse our ability to make these assignments of scope. Fictions give us practice in both simulation and decoupling. Fictions, say Tooby and Cosmides, increase our ability to survive and reproduce by letting us try out solutions to problems of living without bringing down harmful consequences. In that way literature and the arts aid survival. Therefore the genes in people that favor these activities will, over evolutionary time,

<sup>21</sup> For literary purposes, the two key essays are Tooby and Cosmides 2001 and Cosmides and Tooby 2000.

<sup>22</sup> Tooby and Cosmides 2001, 20.

come to replace genes that don't. The evolutionary advantage will cause art, music, and literature to occur in all human cultures.<sup>23</sup>

Cosmides and Tooby make a powerful argument and an appealing one. They buttress it by using schizophrenia as a test case. Schizophrenics, they say, acquire their delusional beliefs because of a failure of the decoupling system.

Decoupling must be related to two of the human memory systems that we looked at in ch. 8. The first is "episodic" memory for what one has experienced ("I have seen police officers"). The second is semantic memory consisting of impersonal propositions about the world ("Police officers catch criminals"). These memory systems involve the frontal lobes, perhaps particularly (for episodic memory) the right prefrontal cortex. Both kinds of memories have various markers for time, place, and source. Tooby and Cosmides identify these markers as "meta-representations" based on scope syntax. Remember how literary characters, to ordinary minds, lack a marker for location (as we saw in ch. 7)? Schizophrenics lose the ability to make these meta-representations. They store false propositions as true and believe those propositions to be true. They misinterpret experience as referring to themselves when it doesn't.<sup>24</sup> ("If a policeman looks at me, he thinks I am a criminal.") Schizophrenics, on this theory, have trouble knowing what thoughts apply to what other thoughts.

Cosmides and Tooby's evolutionary argument says that fictions or, in general, pretense and play allow us to decouple the merely thought or imagined from "real" realities. In this way, for example, we learn how to think about other people's knowledge, a crucial ability for survival. We will not mistake the bored policeman's glance for accusation or persecution.

As I suggested above, the language ability we need for enjoying literature is using "Merger" to put a mind between ourselves and a fact. We need to be able to write and to read and to understand the difference between "There is a banana in that box" and "He thinks there is a banana in that box." This is a form of contingent knowledge--we aren't really deciding whether there is a banana in the box. Scope syntax gives us the ability to infer that what you or someone else knows is not in fact so.

<sup>23</sup> Cosmides and Tooby 2000. Tooby and Cosmides 2001

<sup>24</sup> Cosmides and Tooby 2000, 101-104.

Incidentally, the argument from evolutionary psychology, that the ability to simulate is advantageous, gets backing from traditional psychoanalytic approaches. Freud, for example, compared drama and fiction and poetry to wish-fulfilling daydreams and the play of children<sup>25</sup> and thus to pretense and counterfactuals. Erik Erikson took Freud's idea further, relating artistic make-believe to the psychological adaptations achieved by play: "The child's play is the infantile form of the human ability to deal with experience by creating model situations and to master reality by experiment and planning."<sup>26</sup> Artists do this for themselves directly; they do it for the rest of us to the extent we commit ourselves to their work.

Pediatrician and psychoanalyst D. W. Winnicott suggests that creative experiences, either of making or appreciating the arts, take place in a "potential space" between inner and outer worlds. In such a space we recapture our earliest half-merged relationship with a mother. Literature therefore helps us live better, in Winnicott's view, because it allows us to loosen boundaries--between self and not-self; inner and outer; past, present, and future; self and other. The arts help us go back to a time when we were not so rigidly compartmented into our working and playing and loving selves.<sup>27</sup> These psychoanalytic ideas of the arts as play derive ultimately from Kant's "disinterestedness."

No neuropsychologist would question that we evolved large association cortices (the brain representation, I would suggest, for "potential space") that mediate inner world and outer. In humans, complex systems developed between the regions of our brains that process immediate sensory data and the regions that combine that data with data about our inner states. Together these systems can build--must build--a coherent picture of our inner and outer worlds. No neuropsychologist would deny that these human association cortices are much larger than those of our kindred apes. No neuropsychologist would question that these larger association cortices enable us to do more than other anthropoids to simulate possible courses of action. Nor would any neuropsychologist doubt that this ability to imagine counterfactual solutions without actually

<sup>25</sup> Freud 1908e.

<sup>26</sup> Erikson 1963, 222.

<sup>27</sup> Winnicott 1971. Schwartz 1975.

performing them conferred an evolutionary advantage.<sup>28</sup> Literature certainly gives us practice in imagining these counterfactuals. Q. E. D. Case proven. A propensity for literature is "in our genes."

Wait a minute!

What we saw (in chs 4 and 5) was that the important ability for suspending disbelief and really experiencing a literary work was turning off our imagining of counterfactuals. We pay attention to what we are seeing, hearing, or reading. We don't pay attention to what we ourselves are imagining by way of plans for motor action. If we are responding fully, we do not imagine something else, inconsistent with what we read or what we see onstage or onscreen. We may expand on those, but we are not running an alternative fiction in our heads. If we are, we are daydreaming, not really experiencing the work in front of us.

Because Tooby and Cosmides emphasize the function of modeling the physical world, they confine their argument to "fictions." They define fiction, though, "in its broadest sense, to refer to any representation to be understood as nonveridical, whether story, drama, film, painting, sculpture, and so on." The literary works they actually refer to are: Hamlet, Maoist revolutionary opera, The Old Curiosity Shop, The Winter's Tale, Oedipus Rex, Dr. Strangelove, War and Peace, Shakespeare's history plays, Life on the Mississippi, Alice in Wonderland, King Lear, and Lord Jim. Evidently they really mean representations of social reality. They are talking about literary works that model life situations, real or imagined. No lyric poetry is mentioned here, and I wonder how beast fables, creation myths, utopias and dystopias, fantasy, or science fiction would fit in. How about abstract or non-objective art? Music?

What is scope syntax?

Ellen Spolsky has also pointed out, that, because Tooby and Cosmides rely so heavily on our not acting in relation to a work of art, their evolutionary claim relies more on the conventions of literature and the other arts than the works themselves. Tooby and Cosmides, she says, therefore do not do justice to the complexity of our experience of fictions.<sup>29</sup>

<sup>28</sup> Rainer et al. 1999.

<sup>29</sup> Spolsky 2001b.

Spolsky also points out that deciding what to believe and what not to believe in a fiction is not simply one decision to "uncouple" as Tooby and Cosmides say. She invokes the familiar idea that we draw moral instruction from literary texts, giving the obvious instance of Aesop's fables, where the teller spells out explicit advice for life. As for more sophisticated literature, Spolsky offers the novels of George Eliot and Moby-Dick. Both Melville and Eliot (like countless other authors) offer as asides a great many ideas about human beings and our world. Further, much of literary criticism involves the interpretation of general ideas about human nature embodied "in" the text, the tension "in" Hamlet between justice and revenge, say.

These true-false propositions about life that come with fictions purport to be knowledge that we can take away with us as guides for future conduct.<sup>30</sup> In short, a fiction is not simply a fiction, but a mix of fictions and statements that claim to be truths--often truths about how to conduct ourselves.

As we have seen (in ch. 5), the experiments of Richard Gerrig tease out what readers take away from a text as part of their permanent store of knowledge. The convention "this is only a story" does not govern the whole literary transaction, he shows, only certain parts. We regularly derive information that can be judged true or false from modern detective and adventure stories. Even though some best-sellers are just "entertainments," we get from them facts about army equipment, police procedures, brain disorders, neurotoxins, virus vectors, antiques, modern art, in short, a vast array of subjects. Some of this true-false information that we glean from what we read we regard as useful, and we store it for future use. Some we simply enjoy. But this information is an altogether different kind of thing from a fiction (like "James Bond defeated Goldfinger"). That cannot be said to be true or false any more than we can say a literary character is or is not a person.

Moby-Dick opens this way:

Call me Ishmael. Some years ago--never mind how long precisely--having little or no money in my purse, and nothing particular to interest me on shore, I thought I would sail about a little and see the watery part of the world.

That second sentence asserts something about Ishmael's mood and intentions to which we cannot say

<sup>30</sup> Spolsky 2001b; 2001a.

yea or nay. It is neither true nor false. Then, as the novel unfolds, Melville loads onto that opening a bookful of statements about the nature of God, man, fate, whales, Nantucket, and whatnot. These, however, we can say are true or false. The fiction that this speaker's name is Ishmael or that he intends to go to sea is a different kind of reality from the reality of whales, Nantucket, God, man, or fate that follows.

Spolsky artfully reads the two sentences that introduce the heroine of George Eliot's Middlemarch: "Miss Brooke had that kind of beauty which seems to be thrown into relief by poor dress. Her hand and wrist were so finely formed that she could wear sleeves not less bare of style than those in which the Blessed Virgin appeared to Italian painters." Spolsky astutely points out that by invoking the Virgin Mary and by phrases like "seems to be" or "appeared to Italian painters," Eliot has introduced different levels of fictionality. Having imagined unquestionably fictional Italian paintings, we are likely to think (as Eliot wants us to) that the fictional Miss Brooke is, relative to them, "real." (Shades of Don Quixote!)

In short, Spolsky argues, the idea of a unitary "decoupling" does not do justice to the complicated kinds and degrees of belief and disbelief we bring to bear on fictions. We take different parts of a literary work different ways, depending on the context within the work. It seems to me that she is describing very accurately the way we read, say, a novel through Coleridge's willing suspension of disbelief. (As we saw in ch. 5) we neither believe nor disbelieve. We accept.

One convention, however, holds across all levels of fictionality. This is art and I don't have to act on it." Neither the let's-pretend statements nor the moral-of-the-story statements call for immediate action. Nor does some incidental information about English country life or police procedures. If we take such information for truth at all, we take it as a guide to action in some indefinite future. Whether what I'm reading or seeing is factually true doesn't really matter. When rapt, we neither believe nor disbelieve. Instead, I get absorbed. I enjoy--if I can. Or I may be judging the validity of some moral or factual claim as I read, and in that case I am not "rapt," I do imagine counterfactuals, and I am not "into" the story.

In other words, I don't simply turn on one convention as I begin to read and turn it off when I stop. I do agree not to act, but how deeply I allow that to stop my imagining of counterfactuals or other things outside the literary work can vary a lot.

To me, this is precisely scope syntax. I think Spolsky has sophisticated, not refuted, the evolutionary argument Tooby and Cosmides state so definitively. Responding to literature, we practice how to apply sentences--to guide our real-life actions or for the fun of hearing a story.

#### Tilted truths

Granted, then, we exercise "scope syntax" when we respond to literature. But we also become "rapt" or "absorbed." When we do, we suspend disbelief. We use fictions to allow ourselves to be deceived--where is the evolutionary advantage in that? Poems describe reality, to be sure. But, as Emily Dickinson said, she and other writers,

Tell all the Truth but tell it slant --  
Success in Circuit lies  
Too bright for our infirm Delight  
The Truth's superb surprise.<sup>31</sup>

I don't think "slant" is necessarily the best means for the survival of a tribe of hunter-gatherers. And Hollywood movies or television even less so.

Tooby and Cosmides conclude their article on beauty by an eloquent statement that works of art "stand on a base of an evolved psychology that uses aesthetic experience throughout the life cycle to guide our minds into becoming more fully realized."<sup>32</sup> Yet we use terms like "bookish" and "the ivory tower" to suggest that those of us who spend our lives reading are impractical, unworldly, and poorly adapted for life. Molière had great fun with the unreality of literary folk in Les femmes savantes and Les Precieuses ridicules.

As for beneficial moral effects, critic George Steiner reminds us, "We know that a man can read Goethe or Rilke in the evening, that he can play Bach and Schubert, and go to his day's work at Auschwitz in the morning."<sup>33</sup> And Margaret Atwood slyly says of the women in her novel, The Blind

<sup>31</sup> Dickinson 1955, 1129.

<sup>32</sup> Tooby and Cosmides 2001, 25.

<sup>33</sup> Steiner 1967, preface.

Assassin, who believed that Culture (with a big C) will make you a better person, "They hadn't yet seen Hitler at the opera house."<sup>34</sup>

If art had the good effects Cosmides, Tooby, and other evolutionary critics claim for it, the most "fully realized" people in the world would be those who spend hour after hour and day after day among masterpieces, namely, museum guards. English departments would be populated by saints and sages. I can only say that, after working for nearly fifty years in English departments, that has not been my experience. Now, one could argue that the rampant coupling of English professors with graduate students during the heyday of the "sexual revolution" was spreading the genes of artistic people. True, but was it the combination of literature and genetics that conferred this advantage in reproduction? Or the amatory exuberance of "the Sixties"?

I suspect that the most we can say for literature is that, when we experience the products of verbal imagination, we do something that we are doing anyway. All day long, every day, we are imagining counterfactuals. We are deciding what to believe and what not to believe, what to base actions on and what to ignore. We do these things very well without literature. To be sure, literature allows us to make these decisions without their having any practical consequences. But is that enough of an evolutionary advantage to make an inclination for literature innate? I think it makes literature just one experience among many others in our everyday living.

I think we have to retreat to what Tooby and Cosmides describe as their earlier thinking, that artistic behaviors are evolutionary byproducts, unrelated to our species' survival or reproduction. "We still consider the byproduct hypothesis to be the default hypothesis, with a great body of logic and evidence in favor of it."<sup>35</sup> Literature is a "spandrel."

The term comes from the highly ornamented "spandrels" in Gothic cathedrals, triangular areas formed where the legs of two arches come together. Over the centuries, the arching in the cathedrals became more and more intricate, and the masons had to put in arced triangles between the arches: spandrels. These then became decorated, as though they were intentional parts of the

<sup>34</sup> Atwood 2000, 59.

<sup>35</sup> Tooby and Cosmides 2001, 11.

design. But the spandrels were a non-functional by-product of the arches' evolution. Some theorists of evolution have pointed out that, although it is clear that we evolve most bodily structures, others come along, like the spandrels, as useless by-products of the useful adaptations that evolution selected for.<sup>36</sup> What is the benefit of blue eyes or red hair? Yet they are surely inherited.

In effect, I have suggested above, literature is a "spandrel" to the possible evolution of language. When we became able to use "Merge" to put a mind between us and a statement of fact, we became able to do fictions. "He writes that Hamlet killed the king."

#### Genes at work and play

To further complicate evolutionary claims, the behaviors that we do know are inherited (like the way our neurons structure themselves in fetal development) involve not one but several or many genes. Also, much that we inherit does not, so far as we know, confer any advantage (like blue eyes or red hair). One can see, for example, in the many portraits of the Hapsburg dynasty the same droopy nose, narrow face, and extended jawbone. Clearly hereditary, do these features make for an evolutionary advantage? Rather, these are, in Tooby and Cosmides' term, "byproducts" or what Gould and Lewontin called "spandrels."

Conversely, many things that all cultures do and that obviously confer an advantage in survival and reproduction we do not inherit: education, for example, or cooking. The Soviets espoused Lamarck's idea that learned characteristics would be inherited, because it meant that a communist society would produce citizens who would be communist from birth. We do not believe that, and indeed we do not find communists in the nursery (though, in the bad old days of Senator McCarthy, it was not for lack of trying).

Ultimately, then, I think evolutionary claims on behalf of literature and the arts do not do justice to the complexity of genetic transmission. The process for inheriting a behavior involves at least four steps:

There has to be a relevant gene or, more likely, a cluster of genes;

<sup>36</sup> Gould and Lewontin 1979.

there has to be the particular environment that makes those genes express their proteins;

the proteins have to cause or at least affect the behavior; and

the behavior must increase the likelihood of survival and/or reproduction.

For example, a recent (and important) long-term study of depression found that a certain gene, 5-HTT, occurs in two forms (alleles) in humans, a short form and a long form. If someone carries two copies of the long allele, that person is no more likely to become depressed at joblessness, debt, homelessness, disabling injury, or some other stressful event than people who experienced no catastrophe. If, however, someone carries two copies of the short allele, that person is about twice as likely to become depressed under stress as people with the long allele or those with no stressful event. Experiments showed that the short form of the 5-HTT gene produces less of a protein that helps conduct the neurotransmitter serotonin across the synapse and remove its excess. (Anti-depressant drugs like Prozac do the same.) In short, these researchers have gotten evidence that this specific gene is activated by environmental events to produce a protein that has a specific role in predisposing people to this particular behavior. Perhaps depression was once a useful adaptation to loss and the threat of loss: it was a kind of hibernation. Perhaps, then, some of us inherit a no-longer-helpful tendency to depression.<sup>37</sup>

As you can see, this kind of proof of inheritance calls for a lot of complex experiments. I assume that is why, when literary theorists argue an evolutionary function for literature, they usually skip to the fourth step. They cannot deal with the far more challenging problems of the first three steps. (Neither could I!) They settle for the simpler argument. Everybody does literature. Reading literature (we know!) is a Good Thing. Therefore there must be a genetic basis for reading literature.

For example, "Imagination in terms of creating worlds in which the rules of nature and society are broken--fantasy--is the most recent form of imagination to have evolved," one literary theorist announces. "Evolution had guarded against such ways of thinking . . . . Modern humans, especially those after 50,000 years ago, learned how to overcome those evolutionary constraints by . . . telling

<sup>37</sup> Collier et al. 1996.

stories and performing rituals as a means to . . . provide cognitive anchors for ideas that have no natural home within the evolved mind. In this regard, the modern brain . . . is linked into the world of human culture." We go from homo heidelbergensis to Shakespeare, Picasso, and Einstein in one easy step. This is surely biology-free evolution.

This is also a Just-So story. That last step, the claim that literature provides "cognitive anchors" or "enhances vital capacities," is quite speculative. We have no evidence one way or another about such supposed virtues, and they would be hard indeed to prove. It would be well-nigh impossible to show that some protein triggered these "cognitive anchors." It would be equally difficult to prove that such "anchors" confer enough of an evolutionary advantage for literarily inclined hunter-gatherers to ensure their place in the gene pool.

Also, evolutionary arguments are easy to turn around. Practically anything can be assigned an advantage in survival or reproduction. You could argue that men are innately programmed to like fat women because they and, with them, the men's offspring will survive during times of famine. You could argue equally well that men are programmed to like thin women because thinness is a sign that the woman is not pregnant with another man's offspring. Evolutionary arguments based on just that last fourth step are too easy.

In general, I think the Chomsky-Freud argument that cultural universality evidences heritability works well for some things (laughter and other facial expressions for emotions, for example). But I also think the Chomsky-Freud argument takes a shortcut that can mislead. For example, some form of Oedipus complex is also universal.<sup>38</sup> But is it inherited (as Freud thought)? Or is it simply an inevitable feature of all childrearing and therefore environmental? We just don't know.

All human cultures have taken and take mind-altering drugs--so Richard Davenport-Hines' recent book shows.<sup>39</sup> The earliest evidence he gives is an Egyptian papyrus of 1552 BCE describing 700 opium mixtures, including one for quieting noisy children (shades of Ritalin!). Are we to assume that drug use increases the users' chances of survival and reproduction and is therefore innate? All the

<sup>38</sup> Pinker 2002, 437, citing "Donald E. Brown's List of Human Universals."

<sup>39</sup> Davenport-Hines 2002.

available evidence suggests that using recreational drugs to tinker with our neurotransmitters is not a good idea. Does our genome nevertheless insist that we indulge in narcotics? Are we programmed to be potheads?

Here is a remarkable instance of skipping to the fourth step from a book ambitiously subtitled, "How Sexual Choice Shaped the Evolution of Human Nature":

The evolutionary psychology of the human mind can play by the same scientific rules as the evolutionary biology that studies any other adaptation in any other species. It can present a bold theory about the function of the adaptation and the selection pressures that produced it, and see whether the adaptation has special features consistent with that function and those origins.

The author goes on to downgrade evidence from paleontology: "The details of an adaptation as it currently exists are often more informative than the fossilized remnants of its earlier forms."<sup>40</sup> This is to skip entirely the biological evidence and replace it with easy social generalizations.

The mere fact that some behavior is culturally universal does not by itself prove that it is in our genome. We need to look for the relevant genes and proteins. At least we do, if we are going to claim that something like a penchant for literature evolved.

#### Understanding others' choices

Cosmides and Tooby conclude, "With fiction unleashing our reactions to potential lives and realities, we feel more richly and adaptively about what we have not actually experienced. This allows us not only to understand others' choices and inner lives better, but to feel our way more foresightedly to adaptively better choices ourselves." And they give as an example, "How would I feel if I acted in a cowardly fashion, and my community knew it (Lord Jim)?"

Steven Pinker (in his 1999 book) makes the same argument, which philosopher Jerry Fodor wittily rebuts this way:

And here he [Pinker] is on why we like to read fiction: 'Fictional narratives supply us with a mental catalogue of the fatal conundrums we might face someday and the outcomes of strategies we could deploy in them. What are the options if I were to suspect that my uncle killed my father, took his position, and married my mother?'

<sup>40</sup> Miller 2000, 25. See also Miall 2001, 417.

Good question. Or what if it turns out that, having just used the ring that I got by kidnapping a dwarf to pay off the giants who built me my new castle, I should discover that it is the very ring that I need in order to continue to be immortal and rule the world? It's important to think out the options betimes, because a thing like that could happen to anyone and you can never have too much insurance.<sup>41</sup>

Also, if we think about a Conrad story or a Wagner opera as Cosmides and Tooby and Pinker prescribe, we are thinking about fiction no differently from the way we would think of a situation in life. Suppose I read in today's Times that a Court of Inquiry had revoked the licenses of a captain and crew. These men had abandoned a ship when it struck a submerged object, thinking it lost, and leaving behind 800 Muslim pilgrims as passengers. Once onshore, they reported the ship as sunk, but the ship--and the pilgrims--were later brought into port. The Court publicly adjudged the men to be "in utter disregard of their plain duty" and cancelled all their licenses.

Yes, I would certainly think about Jim, if I knew of him, this romantic, and how he would feel and what he would then do. I would think about cowardice, shame, loss of career, and what I would have done in Jim's shoes. What then do I need the fiction for? I can imagine how I would feel about acting cowardly just from a newspaper. I don't need Conrad's elaborate narrative scheme and intricate motivations. And, as Fodor implies, most of the situations in Shakespeare or Wagner or Conrad are sufficiently removed from my daily life as to be quite irrelevant--including Lord Jim's.

Then, too, are Shakespeare and Wagner and Conrad really the issue? Pinker argues that in thinking about the value of the arts in general, one needs to put aside "excellence and the avant-garde," for "they rely on one-upmanship and arcane allusions and displays of virtuosity" to enhance the status of those who create or enjoy them. One needs to look at what Graham Greene called "entertainments" and consider the basic question Pinker and the evolutionary theorists pose: "What is it about the mind that lets people take pleasure in shapes and colors and sounds and jokes and stories and myths?"<sup>42</sup>

#### Literature and life

<sup>41</sup> Fodor 1997.

<sup>42</sup> Pinker 1999, 523-524.

Doubtless decoupling brain systems can be valuable for survival and reproduction. There is no question but that the ability to reason counterfactually helps us in life. There is surely an advantage in understanding the difference between statements like "Literature confers an evolutionary advantage" and "Tooby and Cosmides believe that literature confers an evolutionary advantage." Scope syntax is a Good Thing.

But these are distinctions we draw all the time everyday in the course of ordinary living. Situations in literature may give us some practice in using scope syntax and decoupling, but does that confer enough of an advantage in survival and reproduction over ordinary living to change the human genome? And how would you prove that it did?

The evolutionary psychologists suggest (apparently) that merely reading Lord Jim will unleash our reactions to potential realities and so enable us "to feel our way more foresightedly to adaptively better choices ourselves." But reading Lord Jim alone will not do this. I would have to think about "the moral" of Lord Jim or, How I would feel if I did what Jim did?

As we have seen (in ch. 5), when we think about a fiction deliberately, separating ourselves from it, testing it against experience and reality, we cease to disbelieve. We stop being "rapt" or "absorbed." We lose the trance. Instead of simply feeling, we think about our feelings. We begin to reality-test. We start believing and disbelieving. We treat the fiction as another piece of reality to be studied and decided about.

Reality-oriented thinking about the significance of a novel in real-world terms is not at all the same as experiencing that novel. The pleasure we get from fictions does not accord with their alleged evolutionary value. We most enjoy fictions when we are "lost" in them, absorbed." We come to fictions for that feeling. Either we fully experience the story, fooling ourselves, and therefore not improving our chances of survival and mating, or we are thinking about the story realistically and therefore not having a full fiction-experience. Simply claiming that reading books is adaptive does not fit what we know of literary experiences in the brain.

What we do and what we do it with

Literary theorist Patrick Hogan draws what seems to me an extremely useful distinction for thinking about an evolution and literature. Hogan distinguishes mechanisms from functions. A mechanism is some fairly precise ability for something the body or brain does: our abilities to grasp or to walk; our auditory system's ability to register slight differences among high frequencies; our separate abilities to perceive motion or colors or to synthesize a world of three dimensions. By contrast, a function uses several mechanisms.

In effect, Hogan is distinguishing what we do from what we do it with. Thus reading is a function that combines the abilities of our eyes to saccade across a page, the concentration of visual acuity in the center of the visual field, the ability to perceive edges (hence letters), some sort of visual lexicon in the brain, and many other mechanisms. Clearly, some of these mechanisms have evolved, like the concentration of visual acuity. Others have to be learned (the visual lexicon--children have to be taught to read). It makes sense to say a mechanism evolved. It does not make sense to say a function evolved or is genetic or is an adaptation, as some evolutionary psychologists do. When we are reading we are certainly using inherited mechanisms, yet we do not inherit the ability to read.

Hogan is carefully distinguishing between evolved mechanisms (like saccading or recognizing edges) and socially pleasurable or useful functions (like enjoying literature). Surely it does not contradict evolutionary biology to distinguish the detailed body mechanisms that we clearly do inherit from complicated functions like reading a novel or watching a play. But rejecting the evolutionary explanation leaves us with the very question with which we began this chapter. All human cultures have "done" literature. Why?