A Writer's Toolkit
by Rudy Rucker

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In a Nutshell

Write what you love.
Let the market follow you instead of the other way around.
Use your whole self.
Don't hold back, don't be embarrassed to write wild.
Push for publication.
If you can't sell, enjoy it anyway...and consider starting a webzine with some friends.
Writing is self discovery.
Believe in the Muse.

1 Writing Is Like ...

Let's start by looking at a few of comparisons between writing and other kinds of things.

1.1 Nature

Nature is made of fractals, and book is a fractal too. You're a plant and the book is the flower you grow.

A fractal is a structure which has many levels of detail, with interesting new features occurring at each level. Nature is full of fractals: mountains, trees, coastlines, the arrangements of the stars in the sky. Just about every kind of animal or plant can be thought of as a fractal: the body, the parts, the organs, the organelles, the processes, the cells, the zillion little structures inside the cells, the biomolecules that make up the pieces of the cells. Making fractals is how Nature grows things. Big things are built up from small.

It really helps to think of the book you're writing as a fractal. The levels are the novel as a whole, the novel's parts, the chapters in the parts, the scenes in the chapters, the actions within a scene, the sentences describing the actions, the phrases in the sentences, and the words in the phrases. To write at the top of your form, you need to be effectively working each level, either consciously or with the unconscious craftsmanship that comes with practice.

Saying it again, I quote from an earlier note I wrote about fractality. I think about the letter level (how to spell the words, especially the dialect and the neologisms), about the word level (the mot juste, the synecdoche), the phrase (the right cadence, the assonance, the consonance, the synecdoche, the litotes), the sentence (the right idea at the right time), the grouping of sentences (the rhetorical play of parallelism and chiasmus), the paragraph (each should be its own little cartoon panel), the page (shuffling the paragraphs together into a dialog-like order), the scene (squeeze the most humor and strangeness out of it), the chapter (get a meaningful development of a character from A to B in the course of a chapter), the novel (grow the whole broccoli stalk up to a seemly shape with a solid rockin' plot), the series (the dynasty-like progress of the families, the time-bound seasoning and perfecting of my style), the oeuvre (the compare and contrast of the varying forms and media, the repeated illumination of my persistent themes).

1.2 Drawing and Painting

In 1998 I was working on an odd book called *Saucer Wisdom* which included a lot of drawings, supposedly made by saucer abductee Frank Shook. Given that the drawings weren't supposed to be by a professional artist, the publisher let me draw them myself, which I enjoyed. Working on the drawings, I began seeing a lot of analogies between drawing and writing.

(i) In drawing I make a quick sketch in pencil, then ink it in, then white out certain pieces and redraw them. In writing I try and write a rough version of the section pretty quickly, then go over it and tune it, and then there will be things that don't work that I have to keep redoing.

(ii) In drawing, whenever there is a part I'm confused about (like two hands holding each other) I end up having to use lots and lots of white-out there, and the surface ends up all bumpy and crufty on the paper and never does look as smooth and clean as the rest of the picture. This is the same in writing, the transitions or actions I'm not clear about take the most rewriting and reworking. But I don't think it's necessarily true that a rewritten patch has to be bumpy and crufty as does a redrawn patch; the bumpiness is partly a result simply of the not-so-great physical properties of the white-out I use.

(iii) In drawing I'd sometimes think that if only I could take the time to fully visualize the difficult passage then I'd be able to draw it clean and right the first time. But often it just seemed too hard to think, and I'd go ahead and draw it wrong, just so I could have something to work off of. In writing I think that if only I could fully think a scene through I can write it much more effectively. But many times it's just too hard to think the whole scene through, I feel like being active, in touch with the medium, so I go ahead and write even though I'm not sure what I'm doing.

(iv) In both cases I need to be clear when something that might have the superficial appearance of a finished piece really is still just a sketch that needs to be reworked. I was kind of surprised how prolonged is the process of making a drawing; I hadn't realized it would take so much revision. By long experience, I am of course familiar with the huge amount of revision a written scene takes. But it's good to see this confirmed by my experience with drawing.

(v) My cartoonist friend Paul Mavrides said about my drawings, and cartooning in general, "It's not the realistic style that matters so much. It's having something to say." And this insight makes me feel free to write a little more cartoony and sketchy sometimes. And it helps me fight my feeling of being inferior to a fine literature exponent who creates beautifully textured descriptions and apercus (shading and perspective!) in a work that perhaps doesn't have as much to say as I hope mine do.

(vi) I got a deeper appreciation of the concept of "eyeball kicks," as exemplified in cartoons such as Well Elder's work in *Mad* magazine or in Walt Kelly's *Pogo*. Elder's eyeball kicks are, to me, of a piece with the piled-on detail of Bosch's teeming works. A higher apotheosis is reached in the later Brueghel where there is still very much action, but the surface doesn't teem, it is harmonious and integrated. These guys have always been touchstone icons for the kind of novels I want to write. Ideally each chapter of a novel can be like a single canvas.

1.3 Music

In the early days of cyberpunk SF writing, it was common to compare one's writing to rock'n'roll. Partly this was a you-wish kind of self-aggrandizement. But there is something to the notion of writing as music.

At a cerebral level, a piece of music often has the type of fractal structure we expect to see in good writing. There's an overall theme, movements, catchy hooks, musical phrases, individual notes.

In another way, we might think of your plan for a novel as a score that's performed by an orchestra composed of your characters. The catch is that you need to race around and personally emulate the behavior of each of your musicians. A novel would thus be more like an orchestral piece recorded by one person laying down layer upon layer of tracks.

The most romantic image connecting music and writing is of course that of the soloist: saxophonist, vocalist, electric guitarist. Working in the SF genre gives me access to certain classic themes: robots, UFOs, expanded consciousness, bizarre weaponry, flight, time-travel, hideous aliens, and so on. I tend to think of these as being like beloved rock'n-roll chords, power chords, "God chords." Even if you're not working in SF, there's a wider set of patterns that occur over and over: the lover's quarrel, the mysterious stranger, the unexpected visitor, the chance meeting, the crisis, and so on.

1.4 Software Engineering

Let's focus on just one aspect of software engineering: design patterns.

Software applications have gotten so big and unwieldy that software engineers keep trying to think of more and more high-level ways to describe the projects they work on. In recent years there's been a fad for design patterns. The fad was inspired by, of all things, Christopher Alexander's *The Timeless Way of Building*, which is a book about architecture. Not *software* architecture, house and city-planning architecture.

There's been a big push among software engineers to identify the patterns that are used in successful software. For instance, the notion of having a web page that different individuals can access is variously called the Observable-Observer, Publisher-Subscriber, or Document-View pattern — with the different names depending on whether it's a normal web page, a web page that sends you email to alert you when it's updated, or a web page that allows you to enter information (such as in a guest-book) that can then be viewed by others.

Joseph Campbell's classic *The Hero With a Thousand Faces* is a very fine attempt to pick out some of the essential patterns that underlie epic stories. He distinguishes seventeen stages in mankind's various myths and legends. I myself just used these stages as the chapters of an epic SF novel called *Frek and the Elixir*, so I can rattle them right off: the Call To Adventure, the Refusal of the Call, the Helper, Crossing the Threshold, the Belly of the Whale, the Road of Trials, the Goddess, the Temptress, Atonement with the Father, Apotheosis, the Boon, Refusal of the Return, the Flight, Rescue from Without, Master of two Worlds, and Freedom to Live.

Belly of the Whale sounds kind of far-fetched, but when you look at, say, SF novels, you'll see that very many of them have a section where the characters travel somewhere inside some other entity (either a ship or an alien leech or cuttlefish).

Other people have talked about much simpler kinds of patterns, like the adage (coined by John Gardner?) that there are only two plots: someone goes on a journey or a stranger comes to town. And there's the boy-meets-girl, boy-loses-girl, boy-gets-girl pattern. And the love triangle. And the romantic square: two couples meet, swap partners, and one gets back together but the other couple doesn't; this was my plot for *Spaceland*.

Although it sounds nice and creative to say, "I'm going to set my characters loose and see what develops," that's not always such a great plan. Reality TV is interesting exactly to the extent that the situations we see happen to lock into archetypal patterns. So it's good to have a pattern in mind.

1.5 Where Do You Get Your Ideas?

Living art forms change—think of painting or popular music or literary novels or even TV sit-coms. SF people are always sad to see the most recent "Golden Age" slip away, but it's sadder still to keep doing the same thing. Inevitably the old material goes stale and the fire gutters down. It's still *possible* to write novels about androids and spaceships and uploading your brain. And, by the same token, it's still possible to write a doo-wop song or paint an abstract expressionist painting. But old forms become stiff and mannered, and working with them is a bit quixotic. Why not some new kinds of SF novel? This is, after all, the twenty-first century.

It's sometimes hard to grasp that the physics and sociology of earlier SF are only things that past writers made up. The received ideas of SF are unlikely to apply to any actual future. There's absolutely no reason why we can't change the rules and dream up fresh futures of our own. We're not duty-bound to copy what our predecessors did.

In talking about ideas, it's well to keep in mind that having ideas is one thing, and turning them into stories is another. You need *two* separate things for a story: first of all, the SF idea or gimmick and, second of all, an underlying issue that the gimmick solves.

As I'll discuss later, I'm of the so-called transreal school of SF writing, so when I'm forming my ideas for an SF tale, I always look into my own life for the issues. That is, given an SF trope, I work to make the idea into a fresh and true metaphor for some immediate real-life concern of mine.

A cautionary note. By "real-life concern" I do *not* mean the doom-and-gloom that the official media are forever pushing on us. The news, in my opinion, is mind-control, motivated by incredibly narrow and self-serving interests. If you're writing your own story, you want to awaken from the fever dream we call history—if only for a few hours. Putting the same thing differently, I like for my stories to speak to a concern or an issue that troubles me personally—rather than to some pumped-up mind-control worries that the media are promulgating.

So what are the concerns that interest me? The things I notice in daily life. Looking around with an SF eye, I'm always wondering how it would be if some aspect of life were exaggerated just a bit more. Just today, I was thinking that, to save money, young couples might start having "reality weddings." You can buy a ticket to attend their wedding and their reception, or for a smaller fee you can watch the festivities over a video feed. And if you're in the patron's circle, a fragment of your DNA is blended into the genes of the young couple's first child so that you're a kind of grandparent. And this line of though speaks to me because these days I'm interested in being a grandparent.

There's a number of more general concerns that have been with me for years. I'm doomed to die, and I wonder if that's really the end. I have dreams every night, what do they mean? My thoughts aren't really like a page of writing at all—they're blotches and rhythms and associations—and is there any way to truly describe one's real mental life? I want to go back to my youth, is there a way? What are the differences between being a child, an adult, and an old person? What is *eating* all about? Can I talk to my cells? What would it be like to be an ant or, even better, an ant colony? These are a few of the issues that happen to matter to *me*—but of course other writers will have very different issues of their own. Part of the trick is to make your own quirky concerns seem universal enough to interest others.

Let me make another general point about ideas. It is in fact very unusual to come up with a truly new idea. No matter how outré an SF or fantasy concept you dream up, more often that not you find out that someone used it in an obscure pulp-magazine story of the 1950s or, which hurts even more, on a TV show or even in a comic.

Beginning SF writers sometimes imagine that writing a story or novel is all about having the idea. I've had amateurs send me emails like, "I'm not a writer, but I have an idea for an SF novel. We'll meet for coffee, I'll tell you the idea, you'll write the novel, and we'll split the money fifty-fifty."

As I said above, as well as the idea, you need the meaning—and more. You have to embody the idea into a social situation with characters that the reader will care about. The idea has to in some way solve a problem that has an emotional resonance to it. The characters have to grow and change. Generally you want to have a love interest in there. And you need what I call eyeball kicks, that is, some interesting things to visualize and think about. And so on. You need the idea, the meaning, the scene, the characters, and the plot as well. And, oh yeah, you need a literary style, so the sentences are evocative, clear, fun to read, and have a nice rhythm.

It is true that you need the idea, yes. But turning the idea into a story is really the bulk of the work. I don't worry too much about people "stealing" any ideas that I mention on my blog or in talks like this. Even if you and I were to start with exactly the same idea, our stories would end up being very different.

One thing that makes the process a little harder for a seasoned writer is that, after a certain number of stories and novels, you've already written about most of the ideas that have obsessed you from early on. And if you read a lot, you can be a little paralyzed by the weight of all that's gone before. Find something that speaks to you, and is anchored in the reality around you. And remember, it's not a crime to use the same idea twice. You can always make it new.

2 Getting Started

2.1 Title

It's important to pick a good title, and the first couple you think of may not be the right ones. Spend some time making lists of possible titles, and come back to this activity every now and then.

Try out your title on people. If you have to repeat it before they understand it, maybe it's not a good title. You want a strong, brand-name kind of a title. On the other hand, if the title's slightly unfamiliar, maybe it'll stick better in people's minds.

There are a variety of traditional title forms. Guides like this often use the "How To..." format. For thrillers, there's the "The Proper-Name Name" format , like *The Bourne Identity*. There's the one-jolting-word format, like *Misery*. There's the literary quote format, like *All Things Great and Small*. There's the gerund format, like *Letting Go*. The fantasy epic format "The Color-Descriptor Power-Object of Weird-Place-Name." here's no need to embrace or avoid the formats, but you should be aware of which standard format, if any, you're using.

It's also a good idea to choose a title that hasn't been used before. Run a quick search of Amazon or, better, of a library's catalog to see if your title's been used very often before. Generally speaking you are free to reuse someone's title, as titles can't be copyrighted or trademarked. But reusing a title is IMHO a sleazy, pin-headed thing to do.

Before calling these notes *A Writer's Toolkit*, I did a quick web search and didn't find it, although there is a *Tools for Writing*. Other titles I considered: *How To Write* (promises too much and is overly hard-sell), *Thoughts About How To Write* (sounds timid and is too long), *Fractal Writing* (makes no sense to most people.)

2.2 The Notes Document

It's useful on most projects, particularly longer ones, to work with two documents: the **Book.doc** that you're writing and a **Book Notes.doc**. Of course "Book" is replaced by some version of the title of the story, article, or book you're working on. In the case of a short story you might not bother with two separate documents and might just keep the notes at the end of the story document.

The point of the distinction is that you accumulate a lot of written material that won't be directly in your book, and the notes document is a good place to keep it. A less obvious reason for doing this is that some days, or at some times of day, you won't feel inspired or energetic enough to work on your book or story. At times like this, it's often comfortable to work on the notes document instead. The notes are just for you, and you don't have to worry too much about what you put in there.

Many writers will maintain a third document with a name like **Journal.doc**, this is where they write things that don't relate to the writing project at all, possibly copying a few bits back and forth between **Journal.doc** and **Book Notes.doc**.

You might sometimes think of your notes document like this. You're a magpie putting together a nest. You pick up shiny things in your beak and carry them home. The Notes document is the ledge where you accumulate your goodies for weaving into your Book nest.

Break your Notes up into sections by formatting a title line of each section differently, maybe even using several kinds of heading formats. Here are some sections you might put in your Notes.

If you want to see many specific examples of Notes documents, you can see book length notes for most of my recent novels at http://www.rudyrucker.com/writing, where I've posted them in PDF form.

On Deck

Often there will be unsolved questions about your story or characters, problems you still have to resolve. Keep a little list of these at the start of your Notes document where they jump out at you. Keep coming back to the questions and thinking about them.

Outline

A lot of writers never do write in advance a complete outline for any story, novel, or nonfiction book they write. Some people are able to do a complete outline, but many of us are not. Getting too hung up on creating a complete outline can become a stumbling block.

This said, it's still a good idea to have some idea of what you want to do. This harks back to what I said earlier about design patterns. We'll say still more about this in our section on Finding Your Story. For now, here are some subheadings you might have in your outline section. I'll say more about some of these things below.

Target Scenes. (Sometimes I use a "cross-country" hike method of composition, simply picking out some high points I want to get to, no matter how.)

Summary. (Keep this in mind for use in pitching the book.)

Three Act Structure. (If you ever want a movie deal, you're gonna need three acts.)

Chapter by Chapter Description. (It's nice to work this out in some detail before you start the chapter, keeping in mind that you will repeatedly revise the description as the chapter develops.)

Plan for Next Scene. (To help sketch out what to write next.)

Journal

This section is for notes relating to your journey through the book. Start each entry with the date, and write current thoughts about the writing project. How you feel about the project, why you want to do it, what might go into it, things you might try, things you don't want to try, what the arc of the story should be like. Unlike a normal diary-like journal, you don't record your daily type thoughts and events, but don't worry too much if you do type them in. Later you can always copy and paste and move the non-writing stuff over into your **Journal.doc.**

Sketches

This is a place for accumulating short descriptions of things that you see. Keep a pen and a folded-in-four piece of paper with you. Make brief sketches in words of interesting things. Like if you see someone striking on the street, or hear someone say something memorable, or have a sudden inspiration, jot it down so you don't forget it. Then when you get to your computer you can add this to your Sketches section. Sometimes you might sit in a coffee shop and sketch the people around you. (Don't stare at them too obviously while you're writing and chuckling, or they'll freak out.) Later you can use the sketch material for making scenes richer by pasting right in. Or you can use sketch bits for describing characters. Or you can use sketch quotes to make characters' speech more colorful.

Don't bother sketching anything that you hear or see on TV, only first-hand observation is of use to you as a writer, only first-hand experience or original imaginings are interesting to a reader.

Avoid copying other books too. Copy life instead. Use dreams, fantasies. Make it fresh. Again: be a magpie.

Phrases

You can equally well put overheard phrases in this section. Here you put whatever phrases you would like to use. Things you think of, things you see, things you hear or perhaps read. Just separate them with skipped lines.

Made-up words go in here, too. Making up good SF words is an art unto itself. You'll often need a word for some future tech, or an alien race, or a place, or a futuristic state of mind. Or some nice futuristic slang. God knows you don't want people to be saying things are "cool," in 3003. I tend to free-associate when I'm trying to make up a word. I'll just write down possibility after possibility, as fast as I can. And then I'll study what I came up with and this time take my analysis even below the world level and look at the roots of the words, at their associations. Word roots are powerful ur-buttons of the psyche. Try and be conscious of your choices.

Chunks

You might feel inspired to write up some possible scenes for your story out of order. Save them here as chunks. Separate the chunks with titles (format them as Heading 2 in MS Word). You can move blocks back and forth between the Chunks section of *Notes on Book.doc* and *Book.doc*.

The Chunks section is also a good place to accumulate discarded fragments. Once you've written something into your novel, you tend to not want to take it back out. It's yours, it's precious, you made it! But often you will have put in expository lumps or foreshadowings of events that don't in fact materialize, and this stuff has to go. Pasting the cuttings into your Notes document is a good way to make it psychologically easier. That way, it's not like you're erasing your work.

Characters

Put a subsection for each character. You can cut and paste from here into your story. What do they look like. Where are they from, things they might say, etc.

Timeline

It's usually a good idea to have a specific date in mind for your action. Look in your computer's calendar and pick a specific day. You should know not only the month, but the day of the week it is when something is happening, as the time of year and the day of the week color the way real life happens. Sometimes it's worthwhile to use Google to find out the phase of the moon, in case your characters are outside at night. If your events run over an extended period of time, a timeline gets really useful. All you need is a series of dates with a note of the event next to them.

Locales

You can invent some locales in your stories, but it's good to often use real locations. Think of it as being like a movie filed on location. Make notes on some specific places, or draw little maps for yourself (maps are one thing that are easier to keep on paper rather than in a computer file).

Technology

If you're writing science fiction, you're going to need some tech ideas. Try and put in oddball twists on actual tech rather than just listing existing things. Don't worry too much if you don't know how something will work, you can always make up some bogus explanation later. The important thing is what the gimmick *does*. You might these entries individual subheading titles and then you can easily come back and add to the various entries.

Society

If you're writing science fiction, your story takes place, perhaps, in a future or alien society. You need to go to some trouble to make it have a different feel. In the society section you accumulate ideas about the politics, culture, economy, whatever. A good way to get these ideas is to notice odd things about your current society and to exaggerate them a bit. Even if you're not writing science fiction, you may well want to think about the aspects of society that you want to focus on.

2.3 The Lead

One of the key things to getting a story started is to write the first few sentences or paragraphs --- what a journalist would call the lead.

Look at a story anthology, and focus on the first few paragraphs of each story.

A lead should kind of zing you. It sets a hook that poses a question you want to know the answer to.

But it shouldn't sound too much like a lead, either. I recently picked up a book of stories where the leads were too exquisitely crafted. Reading each one, you could almost here a *badda-bim* rim-shot. "'I'm hungry,' said the corpse." It's a delicate thing.

It's tricky to start going and not stumble over a big block of exposition right away. It's always uncool, I mean geevey, to have expository lumps, these can stop a reader dead.

The lead is one of those scary places in writing where you are to some extent relying on magical inspiration. On the muse. But don't wait too long. Start by trying the very first thing that pops into your head. Go with that and if you can't make it work, try another.

2.4 P.O.V.

It's wise to decide on the point of view *and stick to it*. In principle it would seem possible to adopt any of six possible viewpoints: I, you, he/she/it, we, you all, they.

The most common is third person singular. There are 2 kinds of 3rd person viewpoints. One is a close-in viewpoint where you are so close to some one individual that you're in a position to describe his/her thoughts. "Jack got up. He was thinking about Edna. He imagined her green ponytails once again. Green like daffodil leaves."

In the close-in 3rd person viewpoint you should usually only be able to see *one* person's thoughts per chapter. Otherwise you get a drifting confusing effect. It's legitimate to switch from chapter to chapter to get a rotating, kaleidoscopic effect. But it's distracting to try and switch viewpoint from scene to scene within a chapter; it gives the reader the unsettling impression that you don't know what you're doing.

The other kind of 3rd person viewpoint is more distant and isn't used so often. "Jack got up. He walked to the window and looked outside. He turned and walked across the room. His lips moved a bit, as he murmured, 'Edna.'"

A really easy viewpoint to manage is 1st person singular. "I got up. I was thinking about Edna, her green daffodil-bunch ponytails." Many find writing in this P. O. V. natural, although there are some, more self-effacing, souls who have a hard time getting themselves to write first person. Note that the 1st person character isn't necessarily the same person as you, the 1st person narrator can be quite different from the author, indeed should be somewhat different. Usually it's wiser to make your character *less* powerful than you imagine yourself to be. Superheroes are boring.

A rarely used viewpoint is 2nd person singular. It can be done close in like: "You get up. You miss Edna. For some wacky reason her hair reminds you of daffodil leaves." 2nd person can also be done at a distance, where the "you" become in some sense a camera. In daily speech, we sometimes use this 2nd person P. O. V. when describing a movie to someone. "You see a car upside down, you zoom in closer and you see this pale white hand hanging out of the window. You figure it's a no-survivor situation, but then all of a sudden the hand spreads its fingers and waves, 'Hi.' And then this face of a woman with clown make-up and green pony-tails pokes out of the window and she starts talking to you about ..." The telling-a-movie mode is useful to keep in mind if you try and write this way. Don't try writing this P. O. V. unless you've thought about it a lot and you have a lot of writing experience. Rarely it is used at novel length, one of the few books like this that come to mind is Jay McInerney, *Bright Lights Big City*.

Not many writers have ever used plural viewpoints. For a certain bizarre hive-mind effect you could maybe do a 1st person plural narrator. "We woke and realized that our goal was to devour the planet Earth." Has anyone ever used 2nd person plural? Maybe for some portentous kind of thing, "You Earthlings grew from the dust and prospered. You labored long and hard..." Hard to see how that could ever lead to any action, though. Perhaps there could be a 3rd person plural hive-mind story. "They came and saw that Earth was good. Yum yum, they ate it all. For they were the killer space-ants."

2.5 Tense

The standard is past tense.

I've always wanted to write a novel in present tense, but editors resist it. Literary types have a better chance of getting away with this than SF writers do.

I don't think anyone's every written a novel in the future tense. "They will do this, they will do this, and you will go to sleep."

3 Writing

3.1 Target Scenes

I mentioned target scenes before. A target scene is like a landmark you want to get to during the hike of your story. It's your goal. Sometimes you'll start with the target scene (brain-eating robots!) and worry about the how and why of it later.

Examples are things that fascinate or obsess you, things that you'd really like to see or experience.

3.2 Summary

Your summary should be something that you can pitch to an editor to try and sell them the book or story. Something that might look work as the flap copy of a book or the slug at the head of a story, that is, as the plot summary that gets people to want to read it.

It's good to come back and look at your summary every now and then, lest you lose track of what the theme and tone of your book are supposed to be! If it's changed and you're happy with the change, then change the summary so it's still in synch with what you're doing.

3.3 Outlining

A work of fiction is a fractal, that is, you can break it down into successively smaller levels. I often think in terms of these levels: Story Arc, Chapters, Scenes, Actions. And below these are the sentence, phrase and word levels, which is where a poetic sensibility comes in.

Story Arc

Movie people always view stories in terms of three acts. We can learn from them.

The flow is something like Introduction, Development, Resolution. Girl meets Boy, Girl loses Boy, Girl gets Boy.

Often there are big actions separating the acts.

Act I) Set up, breakthrough, development. Leads to ---->Reversal.

Act II) Increasing difficulties and complications. Leads to ----> A Plan.

Act III) Executing the steps of the solution. The final harmony (or discord).

Think beyond the Three Acts. Think of Patterns. Campbell's Monomyth, other works (you *can* copy patterns), Romance.

Chapters

For a longer work, it's good to rough out a sequence of chapters, maybe with only a few sentences for each. As you move forward, keep fattening up the impending chapter descriptions.

Maze linkages. You often don't know fully the plot in advance. It's good to have foreshadowings and have things coming together. It's not hard to link back and put the appearance of this in. It takes surprisingly few words. Like erasing a wall in hand-drawn maze to put a door where you need it.

Scenes

Depending how you slice it, a chapter or a story might have one or half a dozen scenes. You want to make each scene kind of self-contained. Your chapter description might have a one or two sentence summary of each scene. Sometimes I put numbered paragraphs inside my chapter description to keep this straight.

A technique for developing a scene is to put in an obstacle. A complication. Exactly the opposite happens of what your characters would want, and then they have to work around it. In terms of the image of a hand-drawn maze, it's like adding a wall that forces you to go the long way round.

Put more abstractly, if your character wants to get from A to B, you should often mess things up by putting in a C. This actually adds an extra scene. For now instead of an (A->B) scene, you now have (A->C) and (C->A). Which is usually a good thing.

Actions

By actions, I mean the small bits of scenes, only a few paragraphs. This happened, then that, then the other ... each is an action. Normally you conceptualize an action whole. An action is the building block of plotting.

You can visualize each scene as happening, so that you see it, and it breaks up into actions. Normally the part where you spend the most work is figuring out the scenes. The sequence of actions follows out of that.

3.4 Power Chords

There's a core of classic SF ideas that I think of as "power chords" — the equivalent of heavy musical riffs that people instantly respond to. A more formal word would be "tropes".

SF is a subset of literature, which has its own tropes, such as the unwed mother, the cruel father, the buried treasure, the midnight phone call, and so forth.

Some examples of SF power chords are: Blaster guns, spaceships, time machines, aliens, telepathy, flying saucers, warped space, faster-than-light travel, holograms, immersive virtual reality, robots, teleportation, endless shrinking, levitation, antigravity, generation starships, ecodisaster, blowing up Earth, pleasure-center zappers, mind viruses, the attack of the giant ants, and the fourth dimension.

When a writer uses an SF power chord, there is an implicit understanding with the informed readers that this is indeed familiar ground. And it's expected the writer will do something fresh with the trope. "Make it new," as Ezra Pound said.

Movies usually don't honor this implicit contract. Sufficient special effects are viewed as a legitimate substitute for a knowledgeable story — as when director-"writers" (writers, my ass!) spend $100 million on the effects for a movie, but can't manage to spare $100 thousand to pay a *real* science fiction writer for a story that makes sense. But even though the movie audience is SF-naive, they sense when the tropes are new to them, or newly re-imagined. The initial *Matrix* film scored big off the "reality as immersive virtual reality" power chord. But then, lacking a real writer to push the trope further, the sequel was an inane hodgepodge.

Another group of freeloaders who fail to pay their power chord dues are the mainstream writers who dip a toe into "speculative fiction". These cosseted mandarins tend not be aware of just how familiar are the chords they strum. To have seen a single episode of Star Trek twenty years ago is sufficient SF research for them! And their running-dog lickspittle lackey mainstream critics are certainly not going to call their club-members to task over failing to create original SF. After all, science-fiction writers and readers are subnormal cretins who cannot possibly have made any significant advances over the most superficial and well-known representations, and they should only be grateful when a real writer stoops to filch bespattered icons from their filthy wattle huts. Not to sound bitter...

But I'm not here to talk about movies or poseurs. I'm here to talk about real SF. One way we make power chords fresh is simply to execute them with a lot of style — to pile on detail and make the scene very real. To execute the material impeccably. I can't resist mentioning two rock'n'roll examples. The Rolling Stones: "I know it's only rock and roll, but I *like* it." The Ramones in "Worm Man": "I need some dirt!" The idea is to invest the familiar tropes with enough craft and energy that they rock harder than ever.

I did this with the robot power chord in my *Ware* series, for instance. My main chord was in fact a specialization of the robot chord that I learned from the divine folios of the incomparable Robert Sheckley: the robots-with-human-personalities power chord.

(Discussing this with Paul DiFilippo the other day, he mentioned that *Astounding SF* used to run a special feature of heavily torqued SF power chords called "Thought Variants.")

A different way to handle the familiarity of a power chord is to use irony as in, say, *The Hitchhiker's Guide to the Galaxy*. Douglas Adams gets away with it, kind of, but there's a bad taste about the practice, a sense that the author's saying, "Science fiction is stupid junk. None of it matters. Let's be silly! Weally, weally thilly!" That's no way to treat our noble genre.

It's worth noting in this context that you can be *funny* without being *silly*. This was something I picked up from the works of Philip K. Dick. *A Scanner Darkly* is one of the funniest books I've ever read, but the laughter rides upon a constant counterpoint of tragedy, a muted background of sad French horns. It's worth noting that *Scanner* (a) uses fresh SF tropes such as the scramble-suit and the scanner, and (b) has a transreal feeling of being about parts of Dick's real life.

3.5 What to Write Next?

Use logic. What follows from what's happened so far? What needs to happen to prepare for the things you have planned?

If you can't write on your story, write on your notes.

Try to read what you have to friends, and listen to their questions.

Sometimes you only need the next action, not the next scene. The next action idea is like you're looking at a cliff and figuring out how to climb up it. Do this, then this, then this.

Stay open to every possible influence, be a sensitive antenna, and you'll pick something up.

When you're writing a novel you're working at the most extreme limit of your capabilities. What you're doing is beyond logic, so far out at the limits of what you can do that there's no hope of your having a short and manageable simulation of the process by which to figure out what you're doing, it's computationally irreducible. When you get into this zone, out on the very surface of your brain, you become sensitive to the tiniest chaotic emanations of the world outside. At times it feels as if the world, feeling your sensitivity, gladly dances back. Dosie-do. Keep your eyes peeled.

3.6 Revising

Reread what you've written, make corrections, type those in, and hopefully the momentum will carry you into the next action or even the next scene. Like painting a wall, you keep pulling the paint out across the painted region onto the raw part.

Work on your chapter outline, play with ideas and structures, move things around. Periodically back off and look at the big picture.

If you have a completely wild, crazy idea, it's often a good idea to go with it. Break up the expectations. But, sometimes you make a mistake. Don't be afraid to backtrack, to fix what you've messed up. Remember, you can save the discarded material into your Notes document.

Sometimes when I'm at a loss for what to do in a chapter, I find myself putting in things that I meant to save for a later chapter. This is a bad idea. Like deficit spending. Let the chapter grow its own fractal complications. If you steal from the future chapters, then you're going to disturb the structure of the book.

How about some architectural analogies? Sometimes to grow the arch of the story out further you need to go back and strengthen the foundation. To make your arch bigger, you need to buttress the base more. To cantilever a deck further out over the void you have to fatten it up nearer the wall, add more support beams to it. Huh?

3.7 Full court press

Think about your story a lot. In bed before sleeping, in the morning when you awake. In traffic. Out jogging. Walking. It's more fun than thinking about your personal problems and the state of the world at large! You might as well believe that your book is as important than the daily news. IMHO, at a cosmic yogic level, it really is.

Sketch both in words and *drawings*. It helps to draw diagrams of your story, or even sketches of scenes. Generally you should always take the time to draw a floor plan of a room that your characters are in. It doesn't have to be beautiful, but doing it is a way of focusing your mind and making the scene real. When I'm stuck, even the cruddiest little sketch can help.

4 More About Stories

4.1 Stories vs. Novels

I see a story as being something like a paperweight—a blown lump of glass with some kind of crack or pattern in it. You can hold it in your hands, you can see the whole thing at once, it's transparent. But there's this weird flaw or fault-surface line inside that makes it interesting. Flaw and fault in the geologic or materials science sense—not in the sense of there being something wrong—although, in a way, the interesting parts of a story are when something goes "wrong" for the characters.

4.2 Reaching the Next Level

Sometimes you get a sense that your stories or novels need just another step to make them commercially publishable. What can you do

The stories might already be good enough, be sure to try a lot of markets. Also keep in mind that, in general, you'll get a little better with each story that you write. But here's a few basic things you might try to kick the story up a level.

Make sure that your characters aren't too flat and generic. You don't want your hero or heroine to be totally good and right and courageous. They need to have some edges, some quirks. This is why I often recommend thinking of some actual people you know when designing your characters. In the same vein, try not have the dialog be too smooth and scripted. Pay attention to the way people actually talk—they blurt, they argue, they lose the thread, they go off on tangents.

Another useful principle is to give the reader some gnarly and interesting things to contemplate. In a movie, special effects add millions to the budget, but in a story it only

takes a few hundred words. It's always good to describe some specific science-fictional objects to about—little devices or creatures or knots in space. This is an instance of the old "show don't tell" principle. Rather than having two people discussing some theory, have one of them pull out, like, an egg with a claw sticking out, and the claw blossoms into a flower...that kind of thing.

It's also good to bring in your special fantastic or science-fiction miracles early in the tale. Don't make the reader wade through most of the story before something exciting happens. Hit them with a wild new development quite early on, and then you can play with the consequences, maybe piling on some extra quirks as you move towards the conclusion.

4.3 Writing the Ending

The trick that's hard to learn is how to give the stories a slick ending. An SF tale you want some kind of gimmick or reveal or aha at the end. These endings don't need to be earth-shatteringly clever, but people want them. It's good if something unexpected happens, and the ending pops out at the reader.

It's best if the ending is a twist or a "reveal"—some unexpected consequence of the assumptions in the story. Let me back up on that. I like to refer to the standard fantasy and SF tropes or scenarios as being "power chords." For a story, you generally select two power chords and work with them, jamming them up against each other, extending them, trying to think of a new way that a given power chord (like telepathy or time travel) might be actualized in a fictional world. And if you think about the situation enough, you can, with luck and inspiration, come up with a twist.

If you can't think of a twist, you can always go for spiritual uplift. The main character achieves insight into their big problem and rises above it. Or a couple finally declares their love for each other. Or someone gets out of jail (which is, come to think of it, an objective correlative for spiritual uplift). But you do need something.

Don't settle for a trailing off ending. In high literature, this is fairly acceptable—to have a story where, at the end, the characters are in for more of the same boring and depressing life as usual. Sometimes younger writers think this kind of ending presents a fresh insight about life. But, it's very well known among adults that life is hard and boring, often unexciting, and filled with ultimately irresolvable problems.

People who read science fiction and fantasy stories are generally looking for a relief from life's dreariness. They would prefer, I think, to see a happy ending or at least a tight and exciting ending. An ending where something happens, a moment when life seems to make sense, an instant when a higher order shines through the dull machinations of fate.

Thinking of a nice ending can be hard. You want to jump out of the system of your story a little bit, to reach out for a greater synthesis. How?

First of all, it helps to understand what your story is really about. Think about the transreal aspects of your story—the very fact that you picked its topics indicates that these themes and situations have some special meaning for you. What does your story stand for in terms of your personal and emotional life? How might some resolution be found to the problems here suggested?

You have to put your whole heart and soul into the story in order to really get it off the ground. That means you want to think about it all the time—or at least a lot of the time—

for days and maybe even weeks on end. Look for clues to the story in the debris on the street, in the faces of the people you meet, and in the flow of media that cascades over your head.

Generally it's better if you figure out the ending sooner rather than later, otherwise there's a tendency to "vamp" in the story, kind of waiting for something to show up. Sometimes I do it that way, but once I get the hot ending flash, then I'll often cut that back.

The ending idea doesn't come easily, you have to obsess on it and push on it for a number of days or even more than a week. That's the hard thing about a novel, for me, that I keep ON having to push for more pops

Most of all, you're waiting for the Muse. If you sincerely seek her, the Muse will come. Sometimes you won't realize that she's speaking to you. You'll think you're just having a crazy, impractical idea. Stay alert, and notice what you are given. Before long, the proper ending for your story will come.

It sometimes takes me six or seven passes to finish a story—including the preliminary passes when the story isn't written through to the end yet. After each pass, I print it out and go outside, or to a coffee shop, and read the new version, marking it up, and trying to figure out where it's going and how I'm going to end it. At some point, I feel like the story is done—that is, I'm not seeing more things to mark up and change.

But some stories come out whole, really in one pass, with maybe a few small tweaks afterwards. These are more like pieces of calligraphic paintings, single gestures that cohere into an attractive, gnarly shape. When I'm fortunate enough to come up with a story like this, I try not to overwork it.

4.4 Or...Your Own Webzine

When it's done, I email or snailmail it to an editor—some magazines only take snailmail—and if it comes back, I send it back out again right away, like the very same day. I used to work my way down to lower-and-lower status publishers, but now, if I can't sell the story to a high-end magazine or webzine, or place it in some kind of original-story anthology, I just short-circuit the process and put the story in my own webzine, *Flurb* at www.flurb.net.

Sometimes, if the story seems non-commercial, I just earmark it for my webzine right away. It's good to have your own webzine. With some promo and help from other authors, you might be able to get a lot of people to read it. Obviously it's important to cajole others into your zine so it doesn't look like a total vanity project. At this point, I publish two stories a year in my webzine, although sometimes my pieces aren't really stories, they're chapters of novels in progress.

Thanks to having my *Flurb* outlet, I've given up on sending stories to certain editors—people who've already turned down two or three stories by me. The SF world is small enough that usually these editors are friends. But there's something about my fiction that doesn't appeal to them, and there's no point going through the same rejection over and over again. For any given writer, some markets just aren't going to work.

This said, when I was a beginning writer, I had a much higher threshold for rejection pain, and would indeed try the same editors over and over and over again. Not that it usually worked. Three Noes tends to mean No forever. It's nice that the Web has come along to give us another way out. Let a thousand webzines bloom!

5 Transrealism

A transreal story is strongly based on some real situation in the author's own life. The idea is to build up the characters on the basis of yourself and the other people you know—possibly merging people or reassembling parts of personalities. You take some issue that concerns you and think of some classic SF or fantasy riff that in some way represents this concern. Then you dial it up and put in a twist at the end if possible.

In writing a transreal story it helps to imagine that your fictional character finds his or her way through the problem that's bothering you. Note that the story needn't look especially different from any other SF story, that is, we're not looking for a deeply emotional True Confessions tale. In other words, don't let the "real" overwhelm the "trans." You're still writing SF. But you're using the "real" to keep the characters from being flat or plastic.

5.1 A Transrealist Manifesto

In this section, I'll quote at length from an essay of mine that appeared in *The Bulletin of the Science Fiction Writers of America*, #82, Winter, 1983. As I wrote this as a manifesto, rather than as a writer's guide, the tone is somewhat high-flown and exhortatory. But even now, twenty or thirty years later, I think the advice is good.

***

I advocate a style of SF-writing that I call Transrealism. Transrealism is not so much a type of SF as it is a type of avant-garde literature. I feel that Transrealism is the only valid approach to literature at this point in history.

The Transrealist writes about immediate perceptions in a fantastic way. Any literature which is not about actual reality is weak and enervated. But the genre of straight realism is all burnt out. Who needs more straight novels? The tools of fantasy and SF offer a means to thicken and intensify realistic fiction. By using fantastic devices it is actually possible to manipulate subtext. The familiar tools of SF — time travel, antigravity, alternate worlds, telepathy, etc. — are in fact symbolic of archetypal modes of perception. Time travel is memory, flight is enlightenment, alternate worlds symbolize the great variety of individual world-views, and telepathy stands for the ability to communicate fully. This is the "Trans" aspect. The "realism" aspect has to do with the fact that a valid work of art should deal with the world the way it actually is. Transrealism tries to treat not only immediate reality, but also the higher reality in which life is embedded.

The characters should be based on actual people. What makes standard genre fiction so insipid is that the characters are so obviously puppets of the author's will. Actions become predictable, and in dialogue it is difficult to tell which character is supposed to be talking. In real life, the people you meet almost never say what you want or expect them to. From long and bruising contact, you carry simulations of your acquaintances around in your head. These simulations are imposed on you from without; they do not react to imagined situations as you might desire. By letting these simulations run your characters, you can avoid turning out mechanical wish-fulfillments. It is essential that the characters be in some sense out of control, as are real people — for what can anyone learn by reading about made-up people?

In a Transrealist novel, the author usually appears as an actual character, or his or her personality is divided among several characters. On the face of it, this sounds egotistical. But I would argue that to use oneself as a character is not really egotistical. It is a simple

necessity. If, indeed, you are writing about immediate perceptions, then what point of view other than your own is possible? It is far more egotistical to use an idealized version of yourself, a fantasy-self, and have this para-self wreak its will on a pack of pliant slaves. The Transrealist protagonist is not presented as some super-person. A Transrealist protagonist is just as neurotic and ineffectual as we each know ourselves to be.

The Transrealist artist cannot predict the finished form of his or her work. The Transrealist novel grows organically, like life itself. The author can only choose characters and setting, introduce this or that particular fantastic element, and aim for certain key scenes. Ideally, a Transrealist novel is written in obscurity, and without an outline. If the author knows precisely how his or her book will develop, then the reader will divine this. A predictable book is of no interest. Nevertheless, the book must be coherent. Granted, life does not often make sense. But people will not read a book which has no plot. And a book with no readers is not a fully effective work of art. A successful novel of any sort should drag the reader through it. How is it possible to write such a book without an outline? The analogy is to the drawing of a maze. In drawing a maze, one has a start (characters and setting) and certain goals (key scenes). A good maze forces the tracer past all the goals in a coherent way. When you draw a maze, you start out with a certain path, but leave a lot a gaps where other paths can hook back in. In writing a coherent Transrealist novel, you include a number of unexplained happenings throughout the text. Things that you don't know the reason for. Later you bend strands of the ramifying narrative back to hook into these nodes. If no node is available for a given strand-loop, you go back and write a node in (cf. erasing a piece of wall in the maze). Although reading is linear, writing is not.

Transrealism is a revolutionary art-form. A major tool in mass thought-control is the myth of consensus reality. Hand in hand with this myth goes the notion of a "normal person."

There are no normal people — just look at your relatives, the people that you are in a position to know best. They're all weird at some level below the surface. Yet conventional fiction very commonly shows us normal people in a normal world. As long as you labor under the feeling that you are the only weirdo, then you feel weak and apologetic. You're eager to go along with the establishment, and a bit frightened to make waves — lest you be found out. Actual people are weird and unpredictable, this is why it is so important to use them as characters instead of the impossibly good and bad paperdolls of mass-culture.

The idea of breaking down consensus reality is even more important. This is where the tools of SF are particularly useful. Each mind is a reality unto itself. As long as people can be tricked into believing the reality of the 6:30 news, they can be herded about like sheep. The "president" threatens us with "nuclear war," and driven frantic by the fear of "death" we rush out to "buy consumer goods." When in fact, what really happens is that you turn off the TV, eat something, and go for a walk, with infinitely many thoughts and perceptions mingling with infinitely many inputs.

There will always be a place for the escape-literature of genre SF. But there is no reason to let this severely limited and reactionary mode condition all our writing. Transrealism is the path to a truly artistic SF.

5.2 Caveats

In *The Art of Fiction*, John Gardner remarks, "When one writes about an actual parent, or friends, or oneself, all one's psychological censors are locked on, so that

frequently, though not always, one produces either safe but not quite true emotion or else — from the writer's desire to tell the truth, however it may hurt — bold but distorted, fake emotion. … Real-life characters do sometimes hold their own in fiction, but only those, loved or hated, whom the writer has transformed in his or her own mind, or through the process of writing, to imaginary beings." p. 126.

When I talk about transrealism, people sometimes say, "Well, aren't you just talking about any kind of effective writing? Isn't good writing always a transmutation of what you immediately know?"

5.3 Transrealism Over the Years

Early in my writing career, my friend Gregory Gibson said something like, "It would be great to write science fiction and have it be about your everyday life." I took that to heart. Also Philip K. Dick was an inspiration here. I seem to recall that the flap copy of a British edition of *A Scanner Darkly* that I read at Brighton Seacon in 1979 referred to the book as "transcendental autobiography."

In 1983 I published an essay, "A Transrealist Manifesto," in the *SFWA Bulletin* [reprinted in *Seek!*]. I proposed a style of writing which combines SF (the "trans") with realism. My principles of transrealism run something like this.

- Use the SF tropes to express deep psychic archetypes.
- Include a main character similar to yourself. Don't glorify the character by making him or her unrealistically powerful (not a general in the space navy, e. g.) or well-balanced.
- Base your other characters on real people you know, or on combinations of them. Avoid stock characters.
- Don't lay too much stress on plotting the book in advance; let the interactions of the characters, the thought experiments and the power chords generate the action.
- Adopt a populist, anti-authoritarian political stance.

The last bulleted point may not seem like a strict logical consequence of the earlier points. A few years ago, for instance, the Republican congressman Newt Gingrich wrote an SF novel — would it have been abstractly possible for him to create priggish, right-wing transrealism? My guess is that someone coming at literature from Newt's standpoint wouldn't be sensitive enough to the way things *are* (as opposed to how they "*should*" be) to write transreally. To see other people in a fully realistic way entails having a lively sympathy for other people, which would seem in turn to entail a liberal egalitarianism.

The word "transrealism" seems to have caught on a little bit. Damien Broderick published a lit-crit book about Transrealism. And I saw the T-word mentioned, if only in passing, in a review in *Locus* this month (August, 2003).

My feelings about transrealism have changed a little bit over the years.

I no longer think that I have to go whole hog with transrealism and cast my friends and family into my books. I think they got a little tired of it. For awhile there, I was like Ingmar Bergman, continually making movies with the same little troupe of actors/family/friends.

Maybe, over the years, I've gained enough writerly craft to be able to create non-reality-based characters. Or maybe I've become able to better imagine the inner lives of

people whom I don't know very well. One way to create characters is to jot down gestures and remarks that you see or hear on the street. This is the method that Jack Kerouac called "sketching".

I'm also no longer sure it's a good idea to put someone like me into my novels. A practical reason has to do with something John Updike talks about: a writer's problem of bit-by-bit using up his or her past life. And it may be that as I get older, my life gets less interesting to write about — or in any case less interesting for my youngish target audience to read about.

In any case, I think I can write somewhat transreally without overtly using my own life. What I have in mind is the notion of basing on SF on real ideas and real emotions that I personally have, and using immediate reality-based perceptions.

Of course if I were to claim that every instance of basing SF on real-world things is "transrealism," then the word would become so inclusive as to be an empty concept. But I do think there is a distinction here between transreal-feeling SF and the other kinds of SF, of which there are certainly several (but I won't try and figure them out and list them here).

One other principle of transrealism I'm considering backing away from is my notion that it's better not to plot my novels in advance. We all have a tendency to try and make virtues of our vices. Maybe I denigrate plot outlines because I'm not good at creating them.

If I wanted to defend the practice of not having a precise plot in advance, I could again speak of Wolfram's computational irreducibility. A characteristic feature of any complex process is that you can't just look at what's going on today and immediately deduce what will be happening in a few weeks. It's necessary to have the world run step-by-step through the intervening ticks of time.

By the same token, I might argue that the last chapter of a novel should be, even in principle, unpredictable from the contents of the first chapter. I compute the ending of my book only by setting in motion the coupled author-word-processor "automaton" and letting it run for some hundred thousand words. The characters and devices are simulation objects bounce off each other like the eddies in one of those turbulent wakes known as a Von Karman vortex street. There's no short-cut way to avoid the effort of carrying out the simulation.

Although I do believe this, I've recently come to feel that it's not a bad idea to select in advance an armature of plot structure. The detailed eddies will indeed have to work themselves out during the writing, but there's no harm in having some sluices and gutters to guide the flow of my story along a harmonious and satisfying course.

6 Gnarl

In this essay, I'll talk about how I write science fiction. I'll be talking about levels of complexity, focusing on what I call the gnarly zone. And I'll get into four particular techniques that I refer to as transrealism, monomyths, power chords, and thought experiments.

6.1 What is Gnarl?

I use *gnarl* in an idiosyncratic and somewhat technical sense; I use it to mean a level of complexity that lies in the zone between predictability and randomness.

The original meaning of "gnarl" was simply "a knot in the wood of a tree." In California surfer slang, "gnarly" came to describe complicated, rapidly changing surf conditions. And then, by extension, something gnarly came to be anything with surprisingly intricate detail. As a late-arriving and perhaps over-assimilated Californian, I get a kick out of the word.

Do note that "gnarly" can also mean "disgusting." Soon after I moved to California in 1986, I was at an art festival where a caterer was roasting a huge whole pig on a spit above a gas-fired grill the size of a car. Two teen-age boys walked by and looked silently at the pig. Finally one of them observed, "Gnarly, dude." In the same vein, my son has been heard to say, "Never ever eat anything gnarly." And having your body become old and gnarled isn't necessarily a pleasant thing. But here I only want to talk about gnarl in a good kind of way.

Clouds, fire, and water are gnarly in the sense of being beautifully intricate, with purposeful-looking but not quite comprehensible patterns. And of course all living things are gnarly, in that they inevitably do things that are much more complex than one might have expected. As I mentioned, the shapes of tree branches are the standard example of gnarl. The life cycle of a jellyfish is way gnarly. The wild three-dimensional paths that a humming-bird sweeps out are kind of gnarly too, and, if the truth be told, your ears are gnarly as well.

I'm a writer first and foremost, but for much of my life I had a day-job as a professor, first in mathematics and then in computer science. Although I'm back to being a freelance writer now, I spent twenty years in the dark Satanic mills of Silicon Valley. Originally I thought I was going there as a kind of literary lark——like an overbold William Blake manning a loom in Manchester. But eventually I went native on the story. It changed the way I think. I drank the Kool-Aid.

I derived my notion of gnarl from the work of the computer scientist Stephen Wolfram. I first met him in 1984, interviewing him for a science article I was writing. He made a big impression on me, and introduced me to the dynamic graphical computations known as cellular automata, or CAs for short. The so-called Game of Life is the best-known CA. You start with a few lit-up pixels on a computer screen. Each pixel "looks" at the eight nearest pixels, counts how many are "on" and adjusts its state according to this total, using a fixed rule. All of the pixels do this at once, so the screen behaves like a parallel computation. The patterns of dots grow, reproduce, and/or die, sometimes generating persistent moving patterns known as gliders. I became fascinated by CAs, and it's thanks in part to Wolfram that I switched from teaching math to teaching computer science.

Wolfram summarized his ideas in his thick 2002 tome, *A New Kind of Science*. To me, having known Wolfram for many years by then, the ideas in the book seemed obviously true. I went on to write my own nonfiction book, *The Lifebox, the Seashell, and the Soul*, partly to popularize Wolfram's ideas, and partly to expatiate upon my own notions of the meaning of computation. A work of early geek philosophy. Most scientists found the new ideas to be—as Wolfram sarcastically put it—either trivial or wrong. When a set of ideas provokes such resistance, it's a sign of an impending paradigm shift.

So what does Wolfram say?

He starts by arguing that we can think of any natural process as a computation, that is, you can see anything as a deterministic procedure that works out the

consequences of some initial conditions. Instead of viewing the world as made of atoms or of curved space or of natural laws, we can try viewing it as made of computations. Keep in mind that a "computer" doesn't have to be made of wires and silicon chips in a box. It can be any real-world phenomenon you like. Does this make the world dull? Far from it.

Having studied a very large number of visually interesting computations called cellular automata, Wolfram concluded that there are basically three kinds of computations and three corresponding kinds of natural processes.

Predictable. Processes that are ultimately without surprise. This may be because they eventually die out and become constant, or because they're repetitive. Think of a checkerboard, or a clock, or a fire that burns down to dead ashes.

Gnarly. Processes that are structured in interesting ways but are nonetheless unpredictable. Here we think of a vine, or a waterfall, or the startling yet computable digits of pi, or the flow of your thoughts.

Random. Processes that are completely messy and unstructured. Think of the molecules eternally bouncing off each other in air, or the cosmic rays from outer space.

The gnarly middle zone is where it's at. Essentially all of the interesting patterns in physics and biology are gnarly. Gnarly processes hold out the lure of being partially understandable, but they resist falling into dull predictability.

Anything involving fluids can be a rich source of gnarl—even a cup of tea. The most orderly state of a liquid is, of course, for it to be standing still. If one lets water run rather slowly down a channel, the water moves smoothly, with a predictable pattern of ripples.

As more water is put into a channel, the ripples begin to crisscross and waver. Eddies and whirlpools appear—and with turbulent flow we have the birth of gnarl.

Once a massive amount of water is poured down the channel, we get a less interesting random-seeming state in which the water is seething.

Now, the pay-off for this whole ine of thought is that it becomes possible, via some computer-science legerdemain, to argue that *all* of the interesting processes of nature are inherently *unpredictable*.

What, by the way, do I mean by "predicting a process"? This means to have some procedure for determining the processes result very much faster than the time it takes to simply let the process run. Saying that a gnarly process is unpredictable, means there are no quick short-cut methods for finding out what the process will do. The only way to really find out what the weather is going to be like tomorrow is to wait twenty-four hours and see. The only way for me to find out what I'm going to put into the final paragraph of a book is to finish writing the book.

It's worth repeating this point. We will never find any magical tiny theory that allows us to make quick pencil-and-paper calculations about the future. Sometimes scientists—or science-fiction writers—have speculated that there's some compact master-formula capable of predicting the future with a few strokes of a pencil. And many still have an internal faith in some slightly more sophisticated restatement of this.

But we have no hope of control. On the plus side, the gnarly is a bit better behaved than the fully random. We can't predict the waves, but we can hope to ride them.

As a reader, I've always sought the gnarl, that is, I like to find odd, interesting, unpredictable kinds of books, possibly with outré or transgressive themes. My favorites would include Jack Kerouac and William Burroughs, Robert Sheckley and Phil Dick, Jorge-Luis Borges and Thomas Pynchon.

Once again, a gnarly process is complex and unpredictable without being random. If a story hews to some very familiar pattern, it feels stale. But if absolutely anything can happen, a story becomes as unengaging as someone else's dream. The gnarly zone lies at the interface between logic and fantasy.

William Burroughs was an ascended master of the gnarl. He believed in having his work take on an autonomous life to the point of becoming a world that the author inhabits. "The writer has been there or he can't write about it... [Writers] are trying to create a universe in which they have lived or where they would like to live. To write it, they must go there and submit to conditions that they might not have bargained for." (From "Remembering Jack Kerouac" in *The Adding Machine: Selected Essays*, Seaver Books 1986.)...

In order to present some ideas about how gnarl applies to literature in general, and to science-fiction in particular, I'm going to make up four tables to summarize ho gnarliness makes its way into science-fiction in four areas: subject matter, plot, scientific speculation, and social commentary.

In drawing up my tables, I found it useful to distinguish between *low gnarl* and *high gnarl*. Low gnarl is close to being periodic and predictable, while high gnarl is closer to being fully random.

Keep in mind that I'm not saying any particular row of the table is absolutely better than the others. My purpose here is taxonomic rather than prescriptive. Rather than using the words "predictable" and "random" to refer to the lowest and highest levels of complexity, one might use the less judgmental words "classic" and "surreal."

Just so you have a general idea of what I'll be talking about, here's how I see some of my favorite authors as located on the complexity spectrum:

Complexity	**Sample Authors.**
SomewhatPredictable,Classic	Classic, Golden Age F&SF. J.R.R. Tolkein, Isaac Asimov, Kage Baker.
Low Gnarl	Robert Heinlein, William Gibson, Bruce Sterling, Cory Doctorow, Karen Joy Fowler.
High Gnarl	Charles Stross, Robert Sheckley, Phillip K. Dick, Eileen Gunn.
SomewhatRandom,Surreal	Douglas Adams, John Shirley, Terry Bisson.

Let me stress again that I like the work of all the authors in this table very much. Otherwise I wouldn't mention them at all. The point here is to discuss various modes and approaches. Note that some authors may write novels in various modes—Terry Bisson's *Pirates of the Universe* for instance, is high gnarl and transreal, while his

The Pickup Artist is a surreal shaggy-dog story. Also note that any given novel may have different complexity levels relative to the four columns.

In any case, if you disagree with my classifications, so much the better—my main goal is to offer a tool for thought.

6.2 Subject Matter and Transrealism

Regarding the kinds of characters and situations that one can write about, my sense is that we have a four-fold spectrum of possible modes: simple genre writing with stock characters, mimetic realism, the heightened kind of realism that I call transrealism, and full-on fabulation. Both realism and transrealism lie in the gnarly zone. Speaking specifically in terms of subject matter, I'd be inclined to say that transrealism is gnarlier, as it allows for more possibilities.

Complexity	**Subject Matter**
Predictable	Genre literature modeled on existing books or folktales.
Low Gnarl	Realism, modeled on the actual world, or on a closely imagined fictional world.
High Gnarl	Transrealism, in which the author's personal experience is enhanced by transcendent elements.
Random	Fabulation, fantasy, or science fiction of unreal worlds.

What do I mean by transrealism? Early in my writing career, my friend Gregory Gibson advised, "It would be great to write science fiction and have it be about your everyday life." I took that to heart. The science fiction novels of Philip K. Dick were an inspiration on this front as well.

In 1983, having read a remark where the writer Norman Spinrad referred to Dick's novel *A Scanner Darkly* as "transcendental autobiography, " I came up with the term *transrealism*, to represent a synthesis between fantastic fabulation (trans) and closely observed character-driven fiction (realism), and I began advocating a transrealist method of writing.

Trans. Use the SF and fantasy tropes to express deep psychic archetypes. Put in science-fictional events or technologies which reflect deeper aspects of people and society. Manipulate subtext.

Realism. Possibly include a main character similar to yourself and, in any case, base your characters on real people you know, or on combinations of them.

Twenty novels later, I no longer feel I have to go whole hog with transrealism and cast my friends and family into my books. I think they got a little tired of it. For awhile there, I was like Ingmar Bergman, continually making movies with the same little troupe of actors/family/friends. These days I'm more likely to collage together a variety of observed traits to make my characters, like a magpie gathering up bright scraps for a nest.

I've come to think that you can in fact write transreally without overtly using your own life or specific people that you know. Even without having any characters who are particularly like myself, I can write closely observed works about my own life experiences. And if I'm transmuting these experiences with the alchemy of science fiction, the result is transreal. So I might restate the principles of transrealism like this.

Trans. The author raises the action to a higher level by infusing magic or weird science, choosing tropes so as to intensify and augment some artistically chosen aspects of reality. Trans might variously stand for transfigurative, transformative, transcendental, transgressive, or transsexual.

Realism. The author uses real-world ideas, emotions, perceptions that he or she has personally experienced or witnessed.

Looking back, here's a list of my most fully transreal works, which are those featuring a character modeled in some way on me. On each line I list a book title, my character's name in the book, and the character's approximate age in the course of the book.

The Secret of Life, "Conrad Bunger", 16-21.

Spacetime Donuts, "Vernor Maxwell", 21-26.

White Light, "Felix Rayman", 26-32.

The Sex Sphere, "Alwin Bitter", 32-34.

Complete Stories (the "Killeville" short stories in particular). Various names. 34-40.

The Hacker and the Ants, "Jerzy Rugby", 40-46.

Saucer Wisdom, "Rudy Rucker", 46-51.

By the way, in hopes of selling to a larger market, and with my blessing, Tor Books marketed *Saucer Wisdom* as a non-fiction book of futurology. But I think it's more accurate to call this book a novel too—in somewhat the same sense that Vladimir Nabokov's *Pale Fire* is a novel rather than a long poem with annotations.

Over the years, I've gained enough writerly craft to start using characters who are assembled from bits and pieces of the real world—without being a particularly close match for any one person. These days I'm more likely to collage together a variety of observed traits to make my characters. Like a magpie gathering up bright scraps for a nest. One way to gather scraps for characters is to jot down gestures and remarks that you see or hear on the street. This is the method that Jack Kerouac called "sketching". And sometimes I even let myself make things up out of whole cloth.

Earlier in my career, it seemed important to put a character like me into my novels, and to depict the people around me. This is due in part to a young writer's egotism—what could be more important than one's own personal experience!

As my mentor Robert Sheckley remarked in his preface to my story collection *Transreal!* "A writer's first problem is how to write. His second is how to write a story. His third is how to write about himself."

I no longer feel as strong an urge to directly depict myself in my fiction. But even without a specifically Rudoid character, my books can be transreal. My Ware novels are full of refracted images of my life when I was writing them, as John Roche points out in "Beat Zen, Alien Zen: Varieties of Transreal Experience in Rudy Rucker's Ware Novels." Although there's nothing of present-day California in As Above, So Below, my historical novel about Peter Bruegel, I came to identify so deeply with Bruegel that I put very much of myself into his character depiction. And the same thing happened when I represented Edgar Allan Poe in my alternate history *The Hollow Earth*.

Turning to some of my later novels, although *Spaceland* was transreally based on life in Silicon Valley, I went ahead and made the main character Joe Cube quite unlike me—I made him a not-too-bright middle-manager. Since the action of the book involves having Joe explore higher dimensions, I thought that the reader might find it more congenial to have Joe be non-mathematical, so as better to mirror the puzzlement that the reader might feel.

My epic quest novel *Frek and the Elixir* would seem to be a complete fabulation: it's set in the year 3003 and involves travel to utterly alien worlds. But Frek's hometown is transreally modeled on the town of Lynchburg, Virginia, where I raised my children, and Frek himself includes elements of my own childhood memories as well as images of my son. Frek's personal difficulties with his father mirror both my own relations with my father and my son's relations with me. And the political subtext of the book is a direct expression of my feelings about Y2K America.

My next novel *Mathematicians In Love* is set once again the contemporary Bay Area of California, and my main characters are young mathematicians incorporating many characteristics of people I've known. The main character shares much of my sensibility, but his life experiences are quite different from mine.

One practical reason for no longer putting my life into my books has to do with something John Updike talks about: a writer's problem of bit-by-bit using up his or her past. And it may be that as I get older, the more recent parts of my life become less interesting to describe—or in any case less interesting to my youngish target audience.

In any case, the point is that you can write transreally without overtly using your own life or specific people that you know. Even without having any characters who are particularly like yourself, you can write closely observed works about your own life experiences. And if you're transmuting these experiences with the alchemy of science fiction, the result is transreal.

To this point, in his afterword to his great transreal novel, *A Scanner Darkly*, Philip K. Dick writes, "I myself, I am not a character in this novel; I am the novel."

Thinking of Philip K. Dick brings a caveat to mind. A transrealist author really does need to model most of his characters upon observations of people other than himself or herself. For in Philip K. Dick's less successful novels, such as *A Crack In Space*, there is a tendency for quite a few of the male characters to be of a similar type: gloomy, self-doubting, and easily cowed by authorities or by powerful women.

One supposes that these might all be images of Phil himself. A book with too many examples of the same kind of character feels airless.

6.3 Monomyth and Emerging Plots

In this section, I'll discuss a four-fold range of plot structures.

Complexity	**Plot**
Predictable	A plot that hews to a standard formula. Monomyths.
Low Gnarl	A plot structure embodying a real-world flow of events. "Life is stranger than fiction."
High Gnarl	A plot obtained by starting with a real-life story and enhancing it, as in a fairy tale.
Random	Like a shaggy-dog story, possibly based on dreams or collage-like juxtapositions.

At the low end of complexity, we have standardized plots, at the high end, we have no large-scale plot at all, and in between we have the gnarly somewhat unpredictable plots. These can be found in two kinds of ways, either by mimicking reality precisely, or by amplifying reality with incursions of psychically meaningful events.

It's often said that there's only a few basic story patterns. Suppose we use the nice word "monomyth" to stand for "story pattern". (Strictly speaking, there should maybe be only one monomyth, but I think it's clear enough what I mean by pluralizing the word.)

I taught software engineering courses to computer science students at San Jose State University for over twenty number of years, and there's a relevant phenomenon I want to mention. In the 1990s, programmers began using "objects" in their programs, where objects are encapsulated high-level software constructs that are easier to use than the rats-nests of low-level code that they replace. In the 2000s there's been a movement towards a still higher-level approach known as "software patterns." The idea is that most programs can be viewed as plugging together certain standard kinds of objects into one of several standard arrangements. A pattern is the notion of hooking together some objects in a certain way.

In literature, the "objects" are the stock characters, the classic situations, the props and devices. And the standard ways of hooking them together are the story patterns or monomyths. Here are a few examples.

Three Wishes. I used this in Master of Space and Time. There were three wishes, and the pattern was comparable to the folktale "The Peasant and the Sausage." The Secret of Life is also about a series of wishes, in this case there were five, and it's modeled on the classic children's book, The Five Chinese Brothers, written by Claire Huchet Bishop and illustrated by Kurt Wiese.

Love Quadrilateral: In setting up Spaceland, I used the notion of two couples who swap partners, and then try and swap back.

Campbell's Monomyth. In order to give my most recent novel Frek and the Elixir a nice mythic feel, I modeled the book on the specific "monomyth" template described in Joseph Campbell's classic The Hero with A Thousand Faces (as George Lucas is said to have done for Star Wars.) Frek and the Elixir was designed from the ground up to match the monomyth so as to give the book the greatest possible resonance.

Campbell's archetypal myth includes seventeen stages. By combining two pairs of stages, I ended up with fifteen chapters. And I matched my chapters to the Cambellian monomyth stages.

Looking back over my other novels, I was surprised to see how many of them had monomythic patterns in them—it's hard in fact to avoid them. For instance, the odd-sounding "The Belly of the Whale" stage of Campbell's monomyth occurs as a faster-than-light trip in White Light, as a boat ride down a river in The Hollow Earth, as a stint inside a hyperspherical creature named Om in Realware, as a ride inside Kangy the hyperspace cuttlefish in Spaceland, and so on.

It's worth mentioning that even though I *consciously* used the monomyth to plot the chapters of *Frek and the Elixir*, I had to work as hard as ever to figure out the details. There's no substitute for simulation.

As I keep saying, a characteristic feature of any complex process is that you can't look at what's going on today and immediately deduce what will be happening in a few weeks. It's necessary to have the world run step-by-step through the intervening ticks of time. Gnarly processes are unpredictable; they don't allow for short-cuts.

Let me say a bit about plots and outlining. I used to maintain that it was better not to plot my novels in advance. But maybe I was just making a virtue of a vice. I denigrated plot outlines because I didn't like working on them, preferring to jump right into the writing.

One might defend the practice of not having a precise outline by speaking in terms of the gnarl. To wit, a characteristic feature of any complex process is that you can't look at what's going on today and immediately deduce what will be happening in a few weeks. It's necessary to have the world run step-by-step through the intervening ticks of time. Gnarly computations are unpredictable; they don't allow for short-cuts. In other words, the last chapter of a novel with a gnarly plot is, even in principle, unpredictable from the contents of the first chapter. You have to write the whole novel in order to discover what happens in the last chapter.

This said, I've also learned that if I start writing a novel with no plot outline at all, two things happen. First of all, the readers can tell. Some will be charmed by the spontaneity, but some will complain that the book feels improvised, like a shaggy-dog story. Second, if I'm working without a plot outline, I'm going to experience some really painful and anxious days when everything seems broken, and I have no idea how to proceed. I've heard Sheckley refer to these periods in the compositional process as "black points." Writing an outline makes it easier on me. Perhaps it's a matter of mature craftsmanship versus youthful passion.

These days, even before I start writing a new book, I create an accompanying notes document in which I accumulate outlines, scene sketches and the like. These documents end up being very nearly as long as my books, and when the book comes out, I usually post the corresponding notes document online for perusal by those few

who are very particularly interested in that book or in my working methods. (Links to these notes documents and some of my essays can be found on my writing page.)

Even with an outline, I can't be quite sure about the twists and turns my story will take. How precise, after all, is an outline? William Burroughs used to say a novel is a map of a territory. But an outline is only a map of a map.

In the end, only the novel itself is the perfect outline of the novel. Only the territory itself can be the perfect map. In this connection, I think of Jorge Luis Borges's one-paragraph fiction, "On Exactitude in Science," that contains this sentence: "In time, those Unconscionable Maps no longer satisfied, and the Cartographers Guilds struck a Map of the Empire whose size was that of the Empire, and which coincided point for point with it."

Regarding the outline, I think of a novel's structure as breaking into four increasingly fine levels: parts, chapters, scenes, and actions. I start with a story arc, describing how the parts fit together. I break the parts into chapters and outline the chapters one by one. As I work on a chapter's outline, I break it into scenes, trying to outline the individual scenes themselves. But as for the actions that make up a scene, more often than not I simply visualize these and describe what I "see."

The outline changes as I work. Shit happens. After writing each scene in a given chapter, I find that I have to go back and revise the outlines of the remaining scenes of the chapter. And after finishing a chapter, I have to go back and revise the outlines of the chapters to come.

Making the same point yet again, whether or not you write an outline, in practice, the only way to discover the ending of a truly living book is to set yourself in motion and think constantly about the novel for months or years, writing all the while. The characters and tropes and social situations bounce off each other like eddies in a turbulent wakes, like gliders in a cellular automaton simulation, like vines twisting around each other in a jungle. And only time will tell just how the story ends. Gnarly plotting means there are no perfectly predictive short-cuts.

But it's not a bad idea to select in advance an armature of plot structure. The detailed eddies will indeed have to work themselves out during the writing, but there's no harm in having some sluices and gutters to guide the flow of the story along a harmonious and satisfying course.

6.4 Power Chords and Thought Experiments

Complexity	**Scientific Speculation**
Predictable	Rote magic or pedagogic science, emphasizing limits rather than possibilities. Power chords.
Low Gnarl	Moderate thought experiments: the consequences of a few plausible new ideas.
High Gnarl	Extreme thought experiments: the consequences of some completely unexpected new ideas.
Random	Irrational and inconsistent; Anything goes. Logic is abandoned.

What stampedes are to Westerns or murders are to mysteries, *power chords* are to science fiction. I'm talking about certain classic tropes that have the visceral punch of heavy musical riffs: blaster guns, spaceships, time machines, aliens, telepathy, flying saucers, warped space, faster-than-light travel, immersive virtual reality, clones, robots, teleportation, alien-controlled pod people, endless shrinking, the shattering of planet Earth, intelligent goo, antigravity, starships, ecodisaster, pleasure-center zappers, alternate universes, nanomachines, mind viruses, higher dimensions, a cosmic computation that generates our reality, and, of course, the attack of the giant ants.

When a writer uses an SF power chord, there is an implicit understanding with the informed readers that this is indeed familiar ground. And it's expected the writer will do something fresh with the trope. "Make it new," as Ezra Pound said, several years before he went crazy.

Mainstream writers who dip a toe into what they daintily call "speculative fiction" tend not be aware of just how familiar are the chords they strum. And the mainstream critics are unlikely to call their cronies to task over failing to create original SF. They don't have a clue either. And we lowly science-fiction people are expected to be grateful when a mainstream writer stoops to filch a bespattered icon from our filthy wattle huts. Oh, wait, do I sound bitter?

One way we make power chords fresh is simply to execute them with a lot of style—to pile on detail and make the scene very real. To execute the material impeccably. I can't resist mentioning two rock'n'roll examples. The Rolling Stones: "I know it's only rock and roll, but I like it." The Ramones in "Worm Man": "I need some dirt!" The idea is to invest the familiar tropes with enough craft and energy that they rock harder than ever.

Another way to break a power chord out of the low-complexity predictable zone is to place the chord into an unfamiliar context, perhaps describing it more intensely than usual, or perhaps using it for a novel thought experiment. I like it when my material takes on a life of its own. This leads to the gnarly zone. As with plot, it's a matter of working out unpredictable consequences of simple-seeming assumptions.

A different way to handle the familiarity of a power chord is to use irony but there can a bad taste in this practice, a sense that the author's saying, "Science fiction is stupid junk. None of it matters. Let's be silly! Weally, weally thilly!" That's no way to treat our noble genre.

The reason why fictional thought experiments are so powerful is that, in practice, it's intractably difficult to visualize the side effects of new technological developments. Only if you place the new tech into a fleshed-out fictional world and simulate the effects on reality can you get a clear image of what might happen.

In order to tease out the subtler consequences of current trends, a complex fictional simulation is necessary; inspired narration is a more powerful tool than logical analysis. If I want to imagine, for instance, what our world would be like if ordinary objects like chairs or shoes were conscious, then the best way to make progress is to fictionally simulate a person discovering this.

The kinds of thought experiments I enjoy are different in intent and in execution from merely futurological investigations. My primary goal is not to make useful predictions that businessmen can use. I'm more interested in exploring the human condition, with literary power chord standing in for archetypal psychic forces.

Where to find material for our thought experiments? You don't have to be a scientist. As Kurt Vonnegut used to remark, most science fiction writers don't know much about science. But SF writers have an ability to pick out some odd new notion and set up a thought experiment. As Robert Sheckley remarked to me when he was living in a camper in my driveway, "At the heart of it all is a rage to extrapolate. Excuse me, shall I extrapolate that for you? Won't take a jiffy."

The most entertaining fantasy and SF writers have a rage to extrapolate; a zest for seeking the gnarl.

6.5 Satire and Cyberpunk

So here's the last of my complexity-spectrum tables.

Complexity	**Social Commentary**
Predictable	Unthinking advocacy of the status quo.
Low Gnarl	Comedy: Noticing that existing social trends lead to absurdities.
High Gnarl	Satire: extrapolating social trends into mad yet logical environments.
Random	Jape, parody, anarchist humor.

I'm always uncomfortable when I'm described as a science-fiction humorist. I'm not trying to be funny in my work. It's just that things often happen to come out as amusing when I tell them the way I see them.

Wit involves describing the world as it actually is. And you experience a release of tension when the elephant in the living room is finally named. Wit is a critical-satirical process that can be more serious than the "humorous" label suggests.

The least-aware kinds of literature take society entirely at face value, numbly acquiescing in the myths and mores laid down by the powerful. These forms are dead, too cold.

At the other extreme, we have the chaotic forms of social commentary where everything under the sun becomes questionable and a subject for mockery. If everything's a joke, then nothing matters. This said, laughing like a crazy hyena can be fun.

But it's worth noting you can be funny without being silly. This was something I picked up from the works of Philip K. Dick. A Scanner Darkly is one of the funniest books I've ever read, but the laughter rides upon a constant counterpoint of tragedy, a muted background of sad French horns. It's relevant to this essay to mention that the masterwork *Scanner* uses fresh SF tropes such as the scramble-suit and the scanner, and has a transreal feeling of being about parts of Dick's real life.

In the gnarly zone, we have fiction that extrapolates social conventions to the point where the inherent contradictions become overt enough to provoke the shock of recognition and the concomitant release of laughter. At the low end of this gnarly

zone we have observational commentary on the order of stand-up comedy. And at the higher end we get inspired satire.

In this vein, Sheckley wrote the following in his "Amsterdam Diary" in *Semiotext[e] SF*, Autonomedia 1997:

Good fiction is never preachy. It tells its truth only by inference and analogy. It uses the specific detail as its building block rather than the vague generalization. In my case it's usually humorous—no mistaking my stuff for the Platform Talk of the 6th Patriarch. But I do not try to be funny, I merely write as I write… In the meantime I trust the voice I can never lose—my own . . . enjoying writing my story rather than looking forward to its completion.

So that's enough about comedy. Let's also move onto social commentary, which often takes a revolutionary turn. In particular, let's talk about cyberpunk.

I have a genetic predisposition for dialectic thinking. We can parse cyberpunk as a synthesizing form.

Cyber. Discuss the ongoing global merger between humans and machines.

Punk. Have the people be fully non-robotic; have them be interested in sex, drugs, and rock'n'roll. While you're at it, make the robots funky as well! Get in there and spray graffiti all over the corporate future.

As well as amping up the gnarliness, cyberpunk is concerned with the maintaining a high level of information in a story—where I'm using "information" in the technical computer-science sense of measuring how concise and non-redundant a message might.

By way of having a high level of information, it's typical for cyberpunk novels to be written in a somewhat minimalist style, spewing out a rapid stream of characterization, ornamentation, plot twists, tech notions, and laconic dialog. The tendency is perhaps a bit similar to the way that punk rock arose as a reaction to arena rock, preferring a stripped-down style that was, in some ways, closer to the genre's roots.

When I moved to California in 1986, I fell in with the editors of the high-tech psychedelic magazine *Mondo 2000*, and they began referring to themselves as cyberpunks as well. They liked my notion of creating cultural artifacts with high levels of information, and their official T-shirt bore my slogan, "How fast are you? How dense?"

Appendix A: Word Processing

If you're writing a lot, it's worthwhile to get good at using your tool, that is, your word processor. This is a never-ending process, both because word processors are fairly complex, and because every few years the software and the interfaces change.

For many of you, some of these tips will be familiar, but I thought I'd set them down here in any case. I currently use the Microsoft Word 2007 on a Windows machine, so if you use a Mac or some other word processor, you'll need to change some of the details I give here.

A.1 Two General Rules

The first rule of using word processors is always to keep a couple of extra copies of your document. Every now and then — not very often, but often enough to matter — something will happen that makes your working file unusable or unavailable, and then you'll be glad to have a recent back-up to fall back on. I never get up from a day's writing without saving my document both to my hard disk and to something else like a floppy, a Zip disk, or a networked laptop. And I always have an up-to-date print-out as well.

Do frequent saves while you're going along. All sorts of unexpected things can end your session, power failure, kicking out the wall-plug, one of your programs freezing up your machine, a piece of your computer breaking, etc. If you've been saving every five or ten minutes you won't lose much.

The second rule of using word processors is that you need to learn how to use them. It takes time, it takes patience, it takes the ability to get over a few disappointments, and a willingness to try a few different things. It really is useful to look at the Help files—or Googling your question. There's almost always is a way to do whatever it is you want to do.

A.2 Document Basics

Here's five things you want to do make a document easy to use.

1) Put the date of the latest update at the start of the document (so you don't mix versions up).
2) Keep an updated word count at the start of the document (good for gauging progress!)
3) Format your chapter and section titles differently from your text (makes the View | Outline mode work, also good for table of contents).
4) Make a table of contents.
5) Use page numbers.

In Microsoft Word, you can do these tasks pretty easily. I'll give a little computer-manual-type info here. When I write a sequence of capital words with | between them, this means I'm talking about successively deeper layers of menu and dialog controls. After you click on the first control named, you'll see a pop-up menu or a dialog with the second name, then you select that and so on.

(1 & 2) You can insert the date and the word count by inserting "fields". Put in the date with Insert | Quick Part | Field | Date. Put in the word count with Insert | Quick Part | Field | Document Information | Word Count. (In earlier versions of Word you use directly to Insert | Field...)

A "field" in your document will update itself whenever you highlight it and press the F9 key. Date fields often automatically update themselves in any case, so if you want a hard, unchanging date on your document, type it in, rather than using a date field.

(3) You can format your chapter titles by highlighting them and selection Home | Styles | Heading 1, and you can use Home | Style | Heading 2 for subsections and so on. You have to select a whole line for these formats to "take". (In earlier versions of Word, you use Format | Style| ...)

(4) If your chapter and sections headings have Heading style formats, then Insert | Index and Tables... | Table of Contents will automatically list them with the page number they start on.

(5) You can use View | Header and Footer | Insert Page Numbers to get pagination. I like to put my page numbers in the Footer, and in the Header put my name, the book title, with a Date field to show the latest revision date, using a small font for the header information. But a lot of people like to do it the other way around, the page numbers at the top, and document information at the bottom.

A.3 Lines and Paragraphs

Don't use carriage returns (ENTER) at the ends of your lines, let the word processor wrap the lines. Only use ENTER to start a new paragraph or to skip a line. Otherwise your text will be hard to format, like if you've ended each line with ENTER, then when you add a few words to a line in the middle of the paragraph, you get a back line break and have to fix the whole paragraph.

Speaking of line breaks, it's a good practice to click the Office button and to select Word Options | Display | Paragraph Marks and maybe make the Tab characters visible as well. When you first start using a word processor, the way lines break can seem like a mystery, and it helps to see the paragraph symbols there in the text. After a little experience, they stop being distracting.

As for indenting, you can either indent each paragraph with a tab or, which is in the long run easier, select Home | Styles, right click on Normal, and then select| Modify... | layout | Paragraph | Special | First Line | 0.5 to make your text automatically indent after each ENTER or Paragraph mark.

A.4 Cutting and Pasting

Something a writer does a *lot* is to cut, copy and paste text. Get very good at doing this. (i) To select a piece of text to copy (or to cut) left click the mouse at the beginning and drag the mouse to the end of the desired text. Dragging is bad for your hands, so instead you can select a block of text like this: use the arrow keys to move the cursor to the start, then hold down the SHIFT key and use the arrow keys to move the cursor to the end of the text. CTRL + Arrow key jumps the cursor a word at a time. (ii) Cutting or copying the text puts it onto an invisible "clipboard." Cutting removes it from the document, copying leaves it there. It's simplest to use CTRL+X to cut and CTRL+C to copy. (iii) You can only paste after you've done a cut or a copy. To Paste in Windows you click the cursor where you want the material to appear, or move it there with the arrow keys. And then you use Edit | Paste. OR you right click and select Paste on the floating menu. OR you use SHIFT+INS. OR you use CTRL+V.

Note that you can select a block of text in one document, copy it, and then paste it into a different document. If you know you want to copy all of a document, you can select Edit | Select All OR use Ctrl + A and then copy.

If you forget these shortcut keys, you can Google for them.

A.5 Spell Checking

The default spell and grammar settings of Word are obtrusive and even user hostile. Whenever you install a new copy of Word, make sure to click the Office button and locate the Word Options | Proofing | Spelling and Grammar dialog , where you can turn off these

three boxes: *Check spelling as you type*, *Check grammar as you type*, *Check grammar with spelling*. You should only have to do this once, Word will remember your settings. And now it won't interrupt you with stupid nit-picking advice when you're trying to be creative.

If you feel really uneasy about your grammar you might leave the third one, but it can quite inhibiting and get you into an unpleasant adversary relationship with your word processor. You don't want to feel like your tool is arguing with you! Better to find your grammar errors yourself, or let your editor (should you be so fortunate) do it. Or turn on grammar checking once, when you're about done with your document, and then go through it to find possible mistakes.

Of course you do want to use your spell checker regularly, when you are in that mental mode. Maybe each day when you're starting or ending your writing. Spell-checking a document is sometimes a way to get yourself started on it again.

It's not a bad idea to make a special custom dictionary with a name like **book.dic** for your spell-checker to use with book in addition to the standard dictionary. The custom dictionary can be a place to save the proper nouns, and non-standard, slang, or made-up words. The reason to save these off into a separate file is that then you can move the dictionary file around with your document and your notes file, like putting all three on your laptop for awhile, then bringing them back to your desktop machine.

Exercises

Individual Exercises

(1) Look at the story leads of all the stories in some collection you like.

(2) See what the P.O.V. is for these stories (you don't necessarily have to read them to find this out!)

(3) Start working on your Notes document. Try and put something in at least three different kinds of sections (you can use the sections I suggest or you can invent ones that you like).

(4) Write three short leads for a story (a few sentences each)

(5) Take the lead you like best and cast it in both 1st and as 3rd person versions to see how the two different P. O. V. s feel.

(6)Write a transreal story. (a) Pick one or two SF power chords that you want to play with. Think of ways to modify the power chords to be a good fit for your own situation. (b) Think of something about your life that bothers you, and that you'd like to work out in a fictional context. (c) Decide on a main character, and on the point of view and the tense for your story. (d) Think of a situation that is either familiar or which resonates with something about your life and write about it. (e) Add a twist at the end.

Group Exercises

(1) Lie down on the floor as if in cold sleep on a spaceship. The instructor then makes UFO-whoops, and the class debarks, stepping outside, aliens on a new world, with the understanding that everyone will talk a lot, but using spontaneously made-up alien words.

(2) Lie down on your backs on floor, in a circle with your shoulders touching and all our heads near each other in the middle. Call out phrases in the voices of the characters in your story, loud and clear. Everyone is staring up at the ceiling, unable to see each other, which removes a lot of social interaction roles and personal distance. Ideally, the voices seem to come at you like from part of a larger brain—a hive mind.

(3) Stand in a circle holding hands and making a buzzing noise for a long time, keeping in mind that the buzzing is a type of information exchange.

(4) Chant to the Muse. Sit together in a darkened room with some lit candles. In the same rhythm as that golden oldie chant, "Om Mane Padme Hum," chant these lines over and over---and see how it feels!

Time, saucers, sex and goo
Elves, mutants, robots too
Muse of strangeness old and new
My blank pages call to you.

References

(1) See my essays on SF writing, online at http://www.rudyrucker.com/writing/ and check out the book-length writing notes for my novels on the same site. Note that some of the material in *A Writer's Toolkit* is copied from my essays.

(2) Anne Lamott, *Bird by Bird*, (Anchor Books 1994). This is a really encouraging book on writing, though maybe it has a little too much about Annie, and in fact I threw it away in disgust after reading a couple of chapters. But her teaching about "crappy first drafts" has been useful to me.

(3) William Strunk and E. B. White, The Elements of Style, (Fourth Edition, Allyn and Bacon, 2000). There's no use fighting it, this little classic is the best style guide ever. Downside: reading it can hang you up.

(4) John Gardner, *The Art of Fiction: Notes on Craft for Young Writers* (Written 1983, Vintage Books edition 1991). This is a really great book, I blogged about it at http://www.rudyrucker.com/blog/2006/03/23/castle-rock-john-gardners-ithe-art-of-fictioni/ Gardner's book contains, among other things, an illuminating discussion of point of view, the insight that you should hone prose like poetry, and the remark that "Good description is symbolic not because the writer plants symbols in it but because, by working in the proper way, he forces symbols still largely mysterious to him u into his conscious mind where, little by little as his fiction progresses, he can work with them and finally understand them. To put this another way, the organized and intelligent fictional dream that will eventually fill the reader's mind *begins as a largely mysterious dream in the writer's mind.*" p. 37. And again, "…nothing in what I'm saying is more fundamental than the concept of the uninterrupted fictional dream." p. 115. Write on!