

How to write about sound ... or almost anything else

by Jay Rose, CAS

I learned to write nonfiction the way many of us learned to mix. I submitted a few local magazine articles as a newbie—the way some of us recorded student or no-budget films—but I was clueless. Then an experienced pro offered to teach me the basics. He assigned two or three pieces a week, read through each, and told me how each could be clearer or more interesting. He used these examples to teach me techniques ... and writers' tricks.

That was half my education. The other half took decades of creating articles, ads, product manuals, even speeches. I analyzed writers I admired, and borrowed shamelessly from them. I made lots of mistakes, tried not to make the same ones twice, and eventually found a groove.

Writing is like mixing or any other craft: it requires talent and knowledge, honed by experience. Talent is up to you. Here's some of the knowledge:

Rule 1: You owe the reader.

Someone's investing time to read your words. Their payoff has to be knowledge they can use. Advertisers do this by writing about benefits, along with the facts and features. You can emulate them: don't just quote the inverse square law when talking about mic placement; say how it will give them a cleaner track, less echo ... and a better movie.

Considering the reader's needs can inspire you. When I wrote docs for Telos' remote ISDN mixer/codec, I actually did *three* manuals: a thick technical reference for the chief engineer; an illustrated 20-page "How Do I Do This?" for operators; and a laminated cheat sheet for everyone at the remote. It cost a little more to produce than a traditional manual ... but meant fewer frustrated customers, and saved money on support calls.

Rule 2: Know where you're going.

Decide what the piece is about, and roughly how you'll get there, before you write a word. You don't need extreme details: a simple list of concepts can suffice, with a few notes about how you'll explain each. Jot these down on the page. Shuffle them around until there's a logical flow. Then start replacing these fragments with usable text.

Word processors are wonderful things. You can replace some notes with text, while you're still tweaking others to add new ideas or explanations. Keep saving incremental backups or with new filenames as you go along: you never know when a rejected idea might be useful elsewhere.

Rule 3: Get a good start.

I consider the lead the most important part of an article. Those introductory paragraphs are like the first 10 minutes of a movie, where you have to hook the viewer and convince them to stay with the whole film. An effective lead* puts the reader on your side, setting the tone for everything else on the page, and can even suggest a complementary idea for the final paragraphs.

Borrow a tip from songwriter Paul Simon, who often starts lyrics with incidents from his real or imagined life. That way, he once said, the listener can't disagree. Isaac Asimov did this brilliantly in 30 years of nonfiction essays for *The Magazine of Fantasy & Science Fiction*. Each starts with a personal anecdote—Asimov was a funny man—inevitably leading to that month's physics, chemistry, or biology lesson. The essays, reprinted in *Asimov on Science* and other books, are an education in both science and how to write about it.

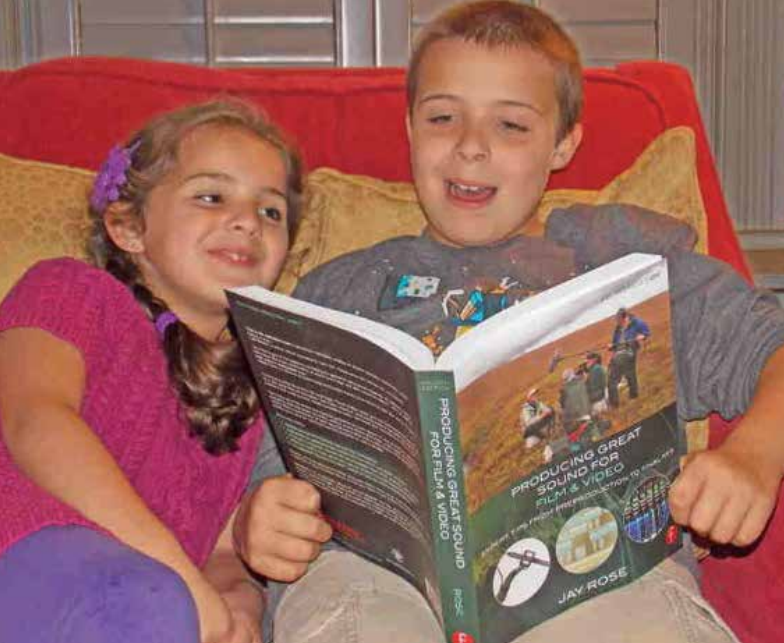
Rule 4: Write for the ear.

We work in sound, so this should be easy. *Listen* to what you've written. Read it as dialog. Each sentence's flow should be immediately obvious. If your text is hard to read aloud, it'll be even harder for readers to digest in silence. Stresses should fall naturally and rhythms should be pleasing to the ear. Shorter words and phrases help, so look for places where one syllable can replace two or three. Avoid using the same words over and over, particularly in the same sentence. That can sound boring.

Rule 5: Write for the eye.

We work in sound, but we can't ignore the image. A page of solid text looks gray and discourages the reader. Provide eye candy. Let graphics help get your point across, by choosing ones that communicate important concepts. Refer to them in the text, and add helpful callouts and captions. Visual analogies are particularly effective when describing sound to non-technical audiences; the figures on the next page show some I used in a recent book about digital audio. If you can't find appropriate illustrations, break up the page with subheads, sidebars, or lists.

* You might see it spelled *lead*. That's a newspaper tradition to distinguish it from *lead*, the gray metal slugs that provide space between lines of type.



Rule 6: Write for a friend.

No matter how many people see your article, it's being read by only one at a time. Unless a medium absolutely demands formality, stay conversational. You can even have a sense of humor. Write like you're talking to an intelligent friend who just hasn't been exposed to this material.

Rule 7: Make your own rules.

My late wife Carla—who wrote 32 computer books in her career, plus an award-winning magazine column—could lean back, close her eyes, then sit up, and type a completed page. She never had to revise. I was jealous, until I realized she was actually writing and editing a picture of the page in her head, and just typing what she saw there.

The point is, my rules work for me. Yours might be different. So start writing. •

Look for trouble

Some words raise red flags. Here are a few to let you know where some editing might be needed:

That: Often unnecessary. If you notice [that] you've used it, see if the sentence makes sense without it.

Simply: Rarely needed, since text shouldn't ever be more complicated than a subject requires. Besides, it may suggest you think the readers are simple.

Very: Usually a sign of laziness. Kill it and the adjective that follows, and use a stronger word instead.

But: Opposes what went before, which can be handy for comparisons. But don't start two consecutive clauses (or sentences or paragraphs) with *but*: the reader won't know which ones are being negated.

Allows/enables you to: Does anybody actually talk like this? Replace it with *lets you*.

In order to: Replace with a simple *to*.

There are plenty more; do a Web search for words to avoid in feature writing.

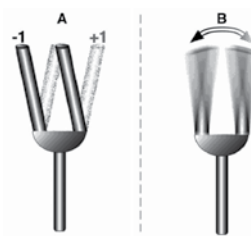


Figure 2.1 A digital tuning fork—if there were such a thing—could instantly click between two positions (A). But real ones (B) move smoothly between the extremes.

- We can use them to wiggle a needle and cut grooves in a moving phono disk.
- We can use them to wave a shutter and cast shadows on a moving film track.
- We can send them through a coil and write varying magnetism on a moving tape covered with iron particles.

Then we can reverse the process, create a varying voltage from what we've stored, and send it to a speaker. The speaker's diaphragm pushes or pulls the air, and recreates the sound.

What we've really stored is a mechanical, optical, or magnetic *analogy* of the sound. And while all three of the above examples are obsolete for mass media, they were the primary way to capture sound for most of the last century.

Analogue recording is mature, most of its problems have been solved, and it works pretty well.

So why complicate matters by turning the sound into computer data?

We don't use digital audio because it's nonlinear; we use it because it's robust

The nonlinear revolution primarily affected video production. Movie film and audio tape have always been nonlinear: you could open any scene or sequence, any time, and trim or add a few more feet of film or tape. Computerized editing may be faster or less messy than splicing (in a few cases, it's slower), but that's not why professional media adopted digital.

Historically, creating media involves a lot of copying. Pieces of movie film are copied onto other pieces of film for special effects, composite masters, and release prints. Analog videotape was edited by copying individual shots from one video deck to another. Most music originates as multitrack recordings, and has its tracks copied in various combinations onto a stereo or surround master; the master is frequently copied a few more times before reaching a format that consumers can play.

Traditional movie tracks went through at least six generations of copies between the shooting stage and the theater. In fact, the room where critical movie sound decisions are made—even in today's digital world—is called a *dub stage*. The person who runs it is the *re-recording engineer*.

Digital audio hides its mistakes

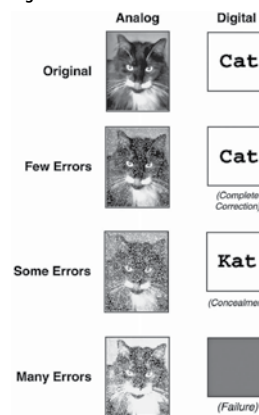


Figure 2.3 Analog and digital handle errors differently.

If one of our analog cat pictures got scratched before its copy was made, we'd be stuck with the scratch in every subsequent copy ... but we'd still recognize our furry friend. If that copy got scratched, *its* copy would be even worse.

Digital audio handles data loss differently:

- Small data errors are reconstructed perfectly. The system uses checking digits to find out what the missing data should have been, and recreates it. If the scratch was a minor data error on a picture file, a copy of the file would be scratchless!
- Medium data errors can be hidden. The checking digits let the system know that *something* is missing, but it doesn't have enough data to make a perfect reproduction. Instead, media players guess the missing data by interpolating from numbers they know are good. In almost every case, the repair is transparent.
- If a big scratch represented so much damage to the data file that it couldn't be reconstructed, the system could blur over it instead. Details would be missing, but it's unlikely we'd notice the scratch.

This error-concealment process is used in real-time media like audio CDs, DVDs, and HD radio. Computer media, including hard drives and files on CD- or DVD-ROM, and Internet packet transmissions, often skip the concealment; if the system can't recreate the data perfectly, it tries again. If the data is completely lost, it lets the user know.

In an analog system, even slight problems cause noise or distortion. But humans are very good at guessing what should have been there, and noisy or distorted signals may still be recognizable. In a digital system, the small problems go away, but the big ones can be catastrophic. Figure 2.3 shows this difference with our cat pictures.

Those catastrophic failures may be rare, but they do happen. As with any other data, it's just common sense to make backup copies of any video or audio material you might ever want to keep.

Two pages from my *Producing Great Sound*, using visual analogies to help explain audio. There's more about that book at www.GreatSound.info