

Using Tables to Present Complex Ideas

By John Strylowski

Another notable column from our 30-year-old archives. This one appeared in February 2013. —JK

Why Use Tables?

When setting forth complex ideas, you sometimes need to go beyond text. You've refined your ideas and reduced them to the bare minimum of precise and appropriate words. You now have a document that your reader can more easily understand, but perhaps the material is so complicated that it still requires extended study. Or maybe you feel that because you're dealing with very complex material, you want to go further to ensure that your thoughts are absolutely clear to the reader. In these cases, a table could make your material easier to understand.

A table diagrams a complex idea and helps your readers understand the relationships between its various parts. By breaking your idea down into its parts and clearly labeling them, a table helps your reader to more easily grasp what you're saying. Tables have these advantages over text:

- They allow your readers to scan your material and go quickly to what they need to know.
- They make it easier for your readers to see the underlying structure of your material.
- They usually use fewer words than text alone.
- They help you, the drafter, to spot flaws in your own logic.



"Plain Language" is a regular feature of the *Michigan Bar Journal*, edited by Joseph Kimble for the Plain English Subcommittee of the Publications and Website Advisory Committee. To contribute an article, contact Prof. Kimble at Western Michigan University Cooley Law School, P.O. Box 13038, Lansing, MI 48901, or at kimblej@cooley.edu. For an index of past columns, visit <http://www.michbar.org/generalinfo/plainenglish/>.

A (Fairly Simple) Example

Let's look at an example. Here's an extract from a regulation telling oil companies how to apply for reductions in their royalty payments:

The processing office must receive your completed application for reduced royalty payments on or before the 15th day of the second month following the month you are reporting if you do not submit your application electronically, or the 25th day of the second month following the month you are reporting if you submit your application electronically.

It would take most people several careful readings to understand this 56-word sentence. Turning it into a table will greatly help the reader to know what it says. One way to determine whether a table could work is to look for *if/then* clauses. If you can find these clauses, you may have a table of at least two columns. Note that the words *if* and *then* may be either explicitly stated or implied. Looking closely at our example, we find two *ifs*:

If you do not submit your application electronically

If you submit your application electronically

While the word *then* doesn't actually appear in this example, there's an implied *then* that matches each *if*. In this case, each *then* is a deadline. In other words, *if* you submit your application one way, *then* you have a certain deadline. Taking advantage of this to organize the material in the sample, here's what we get:

If...	then...
you do not submit your application electronically	the processing office must receive your completed application for reduced royalty payments on or before the 15th day of the second month following the month you are reporting.
you submit your application electronically	[the processing office must receive your completed application for reduced royalty payments on or before] the 25th day of the second month following the month you are reporting.

Seeing this material laid out visually makes it much easier for readers to understand the overall structure of the requirement and then to pick out the provision that applies to their circumstances.

Let's further refine our rough table by putting more words into the headings (to eliminate the need for repetition), putting the positive condition first, and adding introductory language. Here's what we get:

The processing office must receive your completed application for reduced royalty payments on or before the following dates:

If you submit your application...	then the processing office must receive it by...
electronically	the 25th day of the second month following the month you are reporting.
other than electronically	the 15th day of the second month following the month you are reporting.

This is still fairly complex material, but by putting it in tabular form, we've greatly simplified the reader's job. The reader can now see at a glance that there are two deadlines and that the way the form is submitted determines which deadline applies. Since the requirement is now easier to understand, we've significantly improved the chance that the reader will do what we want: submit the application on time.

Why Tables Work

Let's look at some of the reasons that this tabular format makes such a difference in readability.

First, the column headings guide the reader through the material and highlight what's important. The two important parts of our example are the method of submitting and the deadline. By pulling these out of the text and making them into headings, we've given readers a valuable signpost pointing the way to the important information. They can use these signposts to go right to the information they need.

Next, the first column contains the material that's most important to the reader. In this example, it's the submission method (electronic or nonelectronic). This idea is the key to the reader's understanding which deadline applies. Note that, in the original text, the deadline comes first, forcing readers to wade through the very complex deadline description before they could get to the submission method. In the table, our readers see the submission method up front and can then choose, based on the method they use, which of the two conditions applies.

In summary, by using a table we've broken this provision down into its constituent parts. Since we did this visually, separating the main ideas and including signposts pointing to what's important, we provided our reader with a powerful tool for assimilating

what we're saying. It's the difference between leaving home on a trip with a clear roadmap and leaving with a description of your route in words. With a map, things are laid out clearly and relationships are evident; you start out with an idea of where you'll end up. With text, we leave the task of visualizing and relating completely up to the reader.

Another Approach

There are other ways to spot potential tables besides looking for *if*'s and *then*'s. Repetition can also be a clue. Here's an extract from a regulation governing deposits by irrigation districts to a federal fund used for reclamation activities:

Revenues from the following activities will be deposited to the Reclamation fund as a general credit:

- (1) Percentage of revenues as determined by statute from leases for mineral extraction from public domain lands under the authority of the Mineral Leasing Act of 1920;
- (2) Percentage of revenues as determined by statute from rights-of-way issued pursuant to the Mineral Leasing Act of 1920 (rights-of-way are considered separately from the actual lease for the extraction of minerals);
- (3) Percentage of revenues as determined by statute from the leasing of geothermal steam and associated geothermal resources associated with public lands pursuant to the Geothermal Steam Act of 1970;
- (4) Percentage of revenues as determined by statutes from the sale of public domain lands, except as provided in § 403.120(c)(1) and (2);
- (5) Sale of, or licenses, permits or user fees for use of, unimproved townsite lots on lands withdrawn from public entry if there is no pre-1938 repayment contract which includes a valid Subsection I contract provision;
- (6) Licenses, permits, or user fees for the removal and sale of sand, gravel, or other similar mineral materials, and timber from withdrawn lands.

The drafter has made the material into a list, which helps a bit, but there's still a lot more to do to make this material clear

By pulling these [main ideas] out of the text and making them into headings, we've given readers a valuable signpost pointing the way to the important information.

and readable. Looking at the material closely, we can see that each item in the list refers to a source of revenue and an amount that the irrigation district must deposit. Looking further, we see that there are special conditions that apply in some (but not all) cases. Taking advantage of these three commonalities, each of which becomes a column, we can format the material into a table as follows:

Irrigation districts must deposit revenues to the Reclamation fund as a general credit as shown in the following table:

For revenue from...	The district must deposit...	and the following conditions apply...
Leases for mineral extraction from public domain lands under the Mineral Leasing Act of 1920	the percentage of revenues required by statute.	
Rights-of-way issued under the Mineral Leasing Act of 1920	the percentage of revenues required by statute	rights-of-way are considered separately from mineral extraction.
Leasing geothermal steam and associated geothermal resources from public lands under the Geothermal Steam Act of 1970	the percentage of revenues required by statute.	
Sale of public domain lands	the percentage of revenues required by statute	applies only if the sale is not governed by the provisions of § 403.120(c)(1) and (2).
Sale of unimproved townsite lots on lands withdrawn from public entry	all revenues.	
Licenses, permits or user fees for use of unimproved townsite lots on lands withdrawn from public entry	all revenues	applies only if there is no pre-1938 repayment contract which includes a valid Subsection I contract provision.
Licenses, permits, or user fees for the removal and sale of sand, gravel, or other similar mineral materials, and timber from withdrawn lands	all revenues.	

In developing our table, we made each of the three recurring elements (revenue source, deposit amount, and special conditions) into a column. Once we had our column headings, it was then easy to plug in the material from our text. Notice how dramatically easier it now is to take in the provisions at a glance and then figure out which ones apply.

As we did in our first example, we put the material that's most important to the reader in the first column. You'll notice that the

old format began with introductory language: "Revenues from the following activities will be deposited to the Reclamation fund as a general credit." The first items in the list that followed began, not with the activity (which the introductory language told us to look for), but with the percentage to be deposited. In developing the table, we put the activity in the first column in all cases so that the first thing the reader sees corresponds to what the introduction says to look for. Now our reader can easily get an overview of what we want and scan the first column to see if it applies before reading the rest of the material in detail.

Among the changes we made in tabulating this second example was breaking up a complicated provision into two parts. The language in paragraph (5) of the sample referred to "sale of, or licenses, permits, or user fees for use of, unimproved townsite lots." By splitting this into two provisions in the table, we've reduced the possibility that a reader could overlook one or the other of the two situations covered. Although this change required us to repeat the condition ("applies only if") a second time, it's a price worth paying in the service of clarity.

Some Parting Thoughts

What's the minimum amount of material you should put in a table? It's best to judge by what you think will work for your intended audience. Generally, a table may be overkill if you have only two sets of conditions (that is, only two lines under the table's headings). But in our first example, even though there are only two sets of conditions, the material is confusing enough that a table really makes a dramatic difference in readability. If you have doubts about whether a table is appropriate, try both versions on someone from your intended audience. If you can't do that, get an opinion from a colleague, a roommate, or a friend. Then go with what works best for your reader.

Are tables acceptable in legal or technical writing? There are many examples of tables in regulatory material throughout federal and state governments. To date, they have not caused any legal problems. Of course, as you convert material into a table, you must be absolutely certain that you don't change the meaning.

There shouldn't be a problem in citing tabulated material. You can refer to "column 2, line 3 of the table in § 524.3." If you feel

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a need to designate the material in a table, you need designate only the first column, since the table reads across. The table in our first example would look like this with designations:

The processing office must receive your completed application for reduced royalty payments on or before the following dates:

If you submit your application...	then the processing office must receive it by...
(a) electronically	the 25th day of the second month following the month you are reporting.
(b) other than electronically	the 15th day of the second month following the month you are reporting.

A final word about the benefits of tables. They not only help your reader by making your ideas clearer, they help you, the

drafter, in the same way. Putting your material into table format helps you to see relationships much more clearly than you could with a written narrative alone. This forces you to clarify your thoughts and may help you to identify errors. Over years of using tables, I've found that when authors see their written narrative converted to a table, the different perspective they get sometimes helps them to see that they had misstated their ideas. And they go on to draft a revision that says what they really mean—usually in the form of a table. ■

John Strylowski has more than 30 years' experience writing and reviewing regulations and directives for federal agencies. Since the 1990s, he has developed and conducted training for writers at more than 25 federal agencies. He also has collaborated on handbooks and directives for government writers. He has a BA from the University of Wisconsin and an MA from the Catholic University of America. After leaving undergraduate school, he spent two years as a Peace Corps volunteer in Brazil.

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