The Logical Fallacy of 'Hasty Counter-Example'

If you've taken a course in "critical thinking"—or even just had an excellent teacher in high school or college—chances are you've heard of "the fallacy of hasty generalization."

There's also the logically converse fallacy, which is equally common but unlabeled and often confused with the first. I call it that of "hasty counter-example." For the sake of clear thinking, good science, and even public policy, it, too, calls for an explanation as well as a name.

To bring that out by contrast, let's recall what the first fallacy—"the fallacy of hasty generalization"—consists in. Here's an example:

> *"Sam is riding her bike in her home town in Maine… A station wagon comes up behind her and the driver tries to force her off the road. As he goes by, the driver yells 'get on the sidewalk where you belong!' Sam sees that the car has Ohio plates and concludes that all Ohio drivers are jerks."*

Sam's mistake is drawing an over-hasty conclusion—"…*all* Ohio drivers"—from a very limited sample. In fact the conclusion is false. Some Ohio drivers are *not* jerks. The mistake is of the logical form: "An A is a B. Therefore, all As are Bs."

What about the converse error, that of hasty counter-example? Well, for example (no pun intended):

> *"My father smoked four packs of cigarettes a day since age fourteen and lived until age sixty-nine. Therefore, smoking really can't be that bad for you."*

It's easy to see that the above argument is invalid. It's been

scientifically shown that regular cigarette smokers, on average, have a much shorter life expectancy than demographically similar populations of non-smokers. So the conclusion we can reasonably draw in this case is not that smoking cigarettes isn't bad for you, but rather that the speaker's father was a lucky statistical "outlier." Just because the father got lucky doesn't mean most heavy smokers are. We know that most aren't.

Now that example is actually offered by the site "Logically Fallacious" to illustrate hasty generalization. And that's what it is, if the one giving the argument is unaware of the copious scientific studies about the effects of smoking on health.

But suppose they are aware?

In that case, they are offering the argument not as a hasty generalization from their father's case, but as a hasty *counter-example* to the replicated studies. The mistake is of the logical form: "There's at least one A that is not B. Therefore, most As are not B." The tobacco companies used to make that mistake, if only out of self-interest.

The two fallacies in question, which are logical converses of each other, are often confused with each other because it's sometimes unclear what the arguer knows when they make their argument. But it's easy to find cases where no confusion is likely.

For instance, when it's pointed out that the average global surface temperature has increased by a few degrees since the mid-19th century, you can always find somebody protesting that *their* neck of the woods was colder than normal this year, or even this week (as mine was in 2014). They point that out as though it were inconsistent with claiming that the average global temperature has risen. But it's perfectly consistent.

Similarly, social-science studies have repeatedly shown that growing up with one's father absent from the home is correlated, in a statistically significant way, with truancy, crime, drug abuse, and several other negative outcomes. Yet when that's pointed out, many people will protest that they know a heroic single mother who raised good kids. Well yes, there are such mothers. But that doesn't rebut what the studies have shown.

When I taught critical thinking, I was amazed by how often I encountered the fallacy of hasty-counterexample. It's important to resist the temptation to commit it.