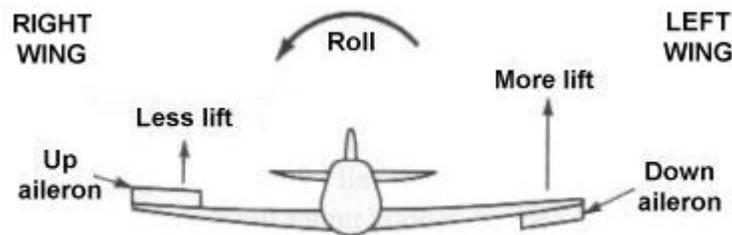


Adverse Yaw

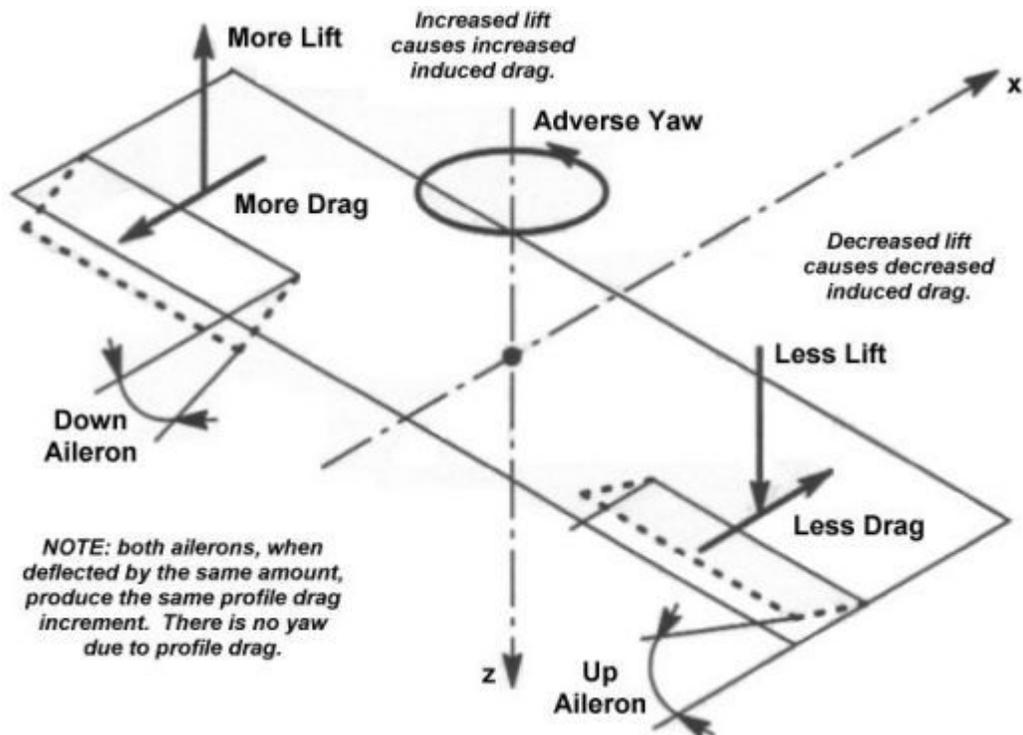
Isn't it correct that I can fly, for example a right turn, by simply moving the left aileron down and the right one up? If it is, it would mean that the airplane rolls and yaws to the right although I did not activate the rudder to generate any yaw control. However, adverse yaw should cause the airplane to yaw to the left. What causes the airplane to yaw to the right then?

I'm not entirely sure I understand your question. The first part of your statement is correct. Moving the left aileron down and the right aileron up will cause the plane to roll right wing down, as shown in the following figure.



Aileron deflections to produce a roll to the right

You are also correct that adverse yaw would cause the nose to yaw to the left, thereby partially opposing the desired direction of roll. Adverse yaw is caused by the fact that the wing with the down aileron generates more drag than the wing with the up aileron. This differential causes the plane to yaw to the left in the example you have described. This "adverse yaw" behavior is illustrated below.

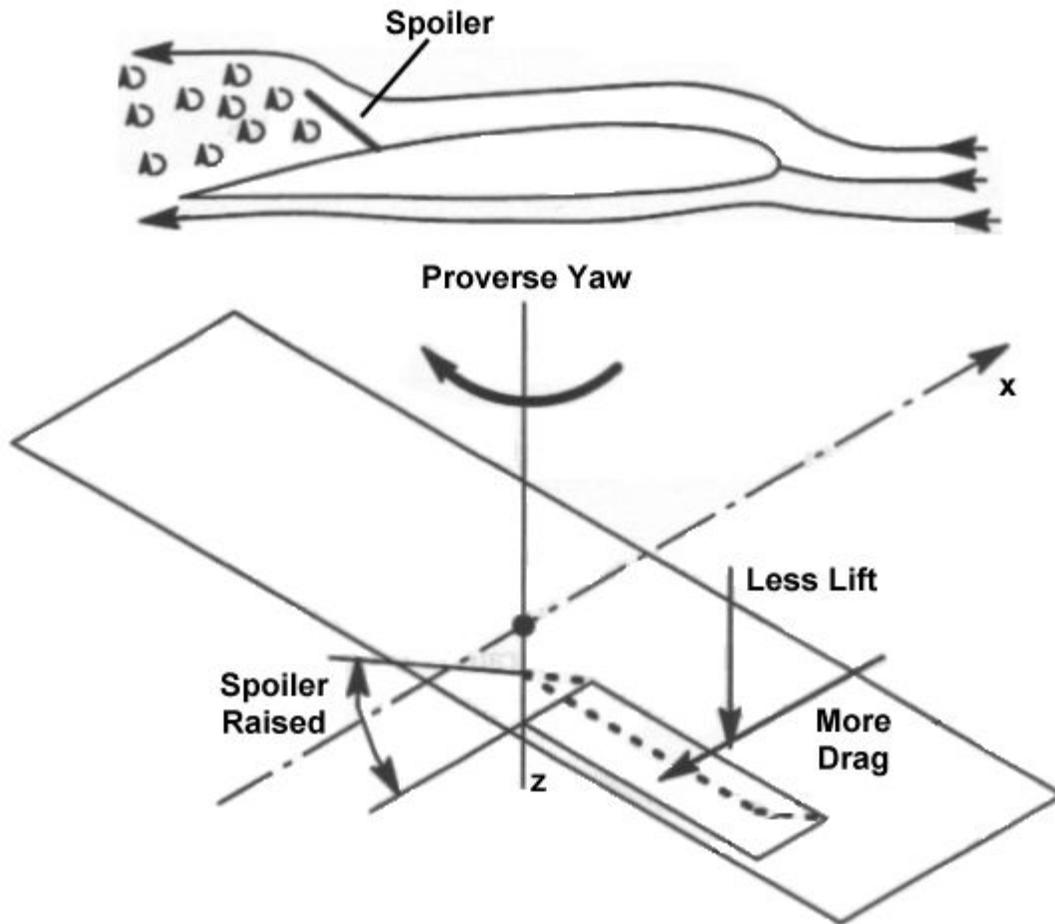


Effects caused by aileron deflection

What I do not understand is your comment about the aircraft yawing to the right. Is this aircraft response based on actual experience flying a plane or a flight simulator or just your gut instinct as to what should happen? If it is based on real-life experience, the aircraft in question may not suffer from adverse yaw or its effects may have been too small to notice at the conditions you were flying at.

In a previous question on [adverse yaw](#), we discussed methods of alleviating or eliminating the effect altogether. A couple of methods were the use of Frise and differential ailerons. These ailerons deflect according to the same principles described above, but they do so in such a way as to minimize the difference in drag created by the left and right sides of the aircraft. If the plane you are talking about is equipped with devices of this kind, the effects of adverse yaw may not be noticeable.

We also discussed spoilers and cross-coupled controls, two approaches that eliminate adverse yaw completely. Spoilers actually create the effect you seem to be describing in your question--a combined roll and yaw in the same direction. This effect is called proverse yaw, illustrated below.



Effect of a spoiler deflection on roll

Either you are confused about the effects you are observing or I am misunderstanding your question, but I encourage you to review our previous answer on the topic of adverse yaw to clarify any misconceptions.