Recall that when the institution affects both states' costs of conflict, the proposer makes an offer with positive probability of bargaining breakdown if:

$$q > \frac{\alpha_A^* c_A + \alpha_B^* c_B}{\alpha_A^* c_A + \alpha_B^* c_B'}$$

Let's compare this to the case where the institution does not alter A's cost—in other words, when $\alpha_A^* = 1$.[1] If the parameters under which conflict occurs are greater under these circumstances, then the causal effect of the institution's assistance to A is to *create* conflict (and the costs that come along with it). This is the case if:

$$\frac{\alpha_A^* c_A + \alpha_B^* c_B}{\alpha_A^* c_A + \alpha_B^* c_B'} < \frac{c_A + \alpha_B^* c_B}{c_A + \alpha_B^* c_B'}$$

Cross multiply:

$$(\alpha_A^* c_A + \alpha_B^* c_B)(c_A + \alpha_B^* c_B') < (\alpha_A^* c_A + \alpha_B^* c_B')(c_A + \alpha_B^* c_B)$$

Then FOIL:

$$\alpha_A^* c_A c_A + \alpha_A^* c_A \alpha_B^* c_B' + \alpha_B^* c_B c_A + \alpha_B^* c_B \alpha_B^* c_B' < \alpha_A^* c_A c_A + \alpha_A^* c_A \alpha_B^* c_B + \alpha_B^* c_B' c_A + \alpha_B^* c_B' \alpha_B^* c_B$$

Now eliminate like terms:

$$\alpha_A^* c_A \alpha_B^* c_B' + \alpha_B^* c_B c_A < \alpha_A^* c_A \alpha_B^* c_B + \alpha_B^* c_B' c_A$$

Divide by $\alpha_B^* c_A$:

$$\alpha_A^* c_B' + c_B < \alpha_A^* c_B + c_B'$$

Rearrange:

$$\alpha_A^*(c_B' - c_B) < c_B' - c_B$$

And divide by $c_B' - c_B$:

[1] This is slightly different than what we were looking at in class with the ϵ method. But in some ways, it is a stronger (and thus more interesting) claim: if any $\alpha_A^* < 1$ results in more bargaining breakdown than when $\alpha_A^* = 1$, the institution really is doing harm.

$$\alpha_A^* < 1$$

This, of course, is true. Thus, for any values of q between $\frac{\alpha_A^* c_A + \alpha_B^* c_B}{\alpha_A^* c_A + \alpha_B^* c_B'}$ and $\frac{c_A + \alpha_B^* c_B}{c_A + \alpha_B^* c_B'}$, the result of the game is conflict with the institution and a negotiated solution without the institution. The institution therefore has a *causal* effect on conflict—and in the bad way!

The problem set asks you to replicate this result for a game with uncertainty over the probability of victory. For that exercise, it will be okay to make a comparison between when the institution acts on behalf of both countries versus when the institution is nonexistent. That is, you should compare the cutpoint on q for when $\alpha_A^* < 1$ and $\alpha_B^* < 1$ to the cutpoint for when $\alpha_A^* = \alpha_B^* = 1$.