Ethnic Conflicts with Informed Agents:

A Cheap Talk Game with Multiple Audiences

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Internet Appendix

This internet appendix contains a proof of the statement made in the paper: if beliefs are pessimistic enough, and there is no informed agent, then the unique equilibrium is one in which all players play fight.

Theorem 1. *There exists an ω^* such that $\forall\ \omega < \omega^*$, there exists a unique equilibrium in which all players choose to fight.*

Proof. To obtain our cut off ω^*, first, we will show that if ω is high enough then it will be optimal for the G players to not fight, given that other G players are playing nf. Consider the strategy profile where all good type players (irrespective of ethnicity) play nf. An arbitrary G player will make the following calculations:

Payoff from playing $f = \omega(-\gamma) + (1-\omega)(\frac{\alpha-\beta+\varepsilon}{2})$

Payoff from playing $nf = \omega(\alpha+\delta) + (1-\omega)(-\beta)$

Clearly, if $\omega \geq \frac{\alpha+\beta+\varepsilon}{\alpha+\beta+\varepsilon+2(\alpha+\delta+\gamma)}$, then playing nf is best response for G player. So this strategy profile constitutes a Bayesian Nash equilibrium if $\omega \geq \omega^* = \frac{\alpha+\beta+\varepsilon}{\alpha+\beta+\varepsilon+2(\alpha+\delta+\gamma)}$.

Next, we want to show that all players playing fight is the only equilibrium if $\omega < \omega^*$. It is trivial to check that all players playing f is a Nash equilibrium for all levels of beliefs. Therefore, we skip this and focus on uniqueness. We will prove this by contradiction. Suppose $\omega < \omega^*$ and there is an equilibrium such that players of at least one ethnicity play nf with strictly positive probability. Suppose the players play according to the following strategy profile:

$$E_1 \; plays \; - \quad p_1(nf) + (1-p_1)f$$
$$E_2 \; plays \; - \quad p_2(nf) + (1-p_2)f$$

Case 1 - $p_1 \neq p_2$.

WLOG, let $p_2 > p_1$. This implies that $p_2 > 0$ and $p_1 < 1$. p_1 cannot be equal to zero, else the best response for the E_2 ethnicity will be to play f with probability one but that would imply $p_2 = 0$. This is a contradiction. Thus, we have that $p_1 \in (0,1)$ i.e. players of ethnicity 1 are indifferent between the action fight and not fight.

Subcase 1 - $p_2 = 1$. In this case, for the E_1 ethnicity players to be indifferent between fight and not fight, we need the condition that the payoff from fighting is equal to the payoff from not fighting. Thus we have,

$$\omega(-\gamma) + (1-\omega)\left(\frac{(1-r+(1-p_1)r)\alpha}{1-r+(1-p_1)r+(1-r)} + \frac{(1-r)(-\beta+\varepsilon)}{1-r+(1-p_1)r+(1-r)}\right) = \omega(\alpha+\delta) + (1-\omega)(-\beta)$$

It can be easily checked that the ω which solves the this expression is above ω^*. However, we started with the case that $\omega < \omega^*$. So, this is a contradiction.

Subcase 2 - $p_2 < 1$. In this case, we must have that both ethnicities are indifferent between the two actions. However, it is easy to check that we cannot have common priors and have two symmetric ethnicities be simultaneously indifferent when mixing with different probabilities (since $p_2 \neq p_1$).

Case 2 - $p_1 = p_2$.

Subcase 1 - $p_1 = p_2 = 0$. This is not possible since we want an equilibrium in which players of at least one ethnicity play not fight with positive probability.

Subcase 2 - $p_1 = p_2 = 1$. By definition of ω^*, we know that in this case, there is a profitable deviation in switching to fight for any arbitrary player.

Subcase 3 - $p_1 = p_2 \in (0,1)$. In this case, players of both ethnicity are indifferent between fight and not fight and equal fractions of both ethnicity are playing fight. We can show quite easily that for mixing to be optimal, we need $\omega = \omega^*$. This is a contradiction because we started with $\omega < \omega^*$.

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