THE GEOPOLITICS OF STANDARDS
A SIMPLE ECONOMIC MODEL

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IP on the Wane: Examining the Impacts as IP Rights are Reduced
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CO-OPETITION IN AN INTEGRATED WORLD (1)

- Two countries: $W$ and $E$
- Each country invests in growing a standard: $g_W, g_E$
- The benefits of the standard are $B_W(g_W, g_E), B_E(g_W, g_E)$
- Each country invests in appropriating the other’s benefits: $s_W, s_E$
- The cost of investing in growing the standard: $c_W(g_W), c_E(g_E)$
- The cost of pirating: $\gamma_W(s_W), \gamma_E(s_E)$
- Hence,

$$W = (1 - s_E)B_W(g_W, g_E) + s_WB_E(g_W, g_E) - c_W(g_W) - \gamma_W(s_W)$$

$$E = (1 - s_W)B_E(g_W, g_E) + s_EB_W(g_W, g_E) - c_E(g_E) - \gamma_E(s_E)$$
CO-OPETITION IN AN INTEGRATED WORLD (2)

- Country $W$:

\[ B_E(g_W, g_E) = \frac{\partial \gamma_W(s_W)}{\partial s_W} \]

\[ (1 - s_E)(\frac{\partial B_W(g_W, g_E)}{\partial g_W}) = \frac{\partial c_W(g_W)}{\partial g_W} \]

- Country $E$:

\[ B_W(g_W, g_E) = \frac{\delta \gamma_E(s_E)}{\partial s_E} \]

\[ (1 - s_W)(\frac{\partial B_E(g_W, g_E)}{\partial g_E}) = \frac{\partial c_E(g_E)}{\partial g_E} \]
Suppose:

\[ B_E(g_W, g_E) < B_W(g_W, g_E) \]

\[ \frac{\delta \gamma_E(s_E)}{\partial s_E} \leq \frac{\delta \gamma_W(s_W)}{\partial s_W} \]

Then

\[ s_E > s_W \]

Both \( W \) and \( E \) will find it optimal to contribute less to grow the standard than in a world in which \( s_E = s_W = 0 \).
THE RISK OF FRAGMENTATION

- Suppose $s_W = 0$

- If $s_E$ is sufficiently large, country $W$ may find it optimal to “fork” the standard

\[
W(\text{Integration}) = (1 - s_E)B_W(g_W, g_E) - c_W(g_W) < B_W(g_W, 0) - c_W(g_W) = W(\text{Fragmentation})
\]
SO WHAT?

- A prisoners’ dilemma

- Actions aimed at reducing $B_E(g_W, g_E)$ won’t produce the desired outcomes

- Actions seeking to increase $\delta y_E(s_E) / \partial s_E$ may help

- The threat of fragmentation is too coarse and, due to irreversibility, suboptimal

- We need to find the right “tit for tat” strategy ….