The Patience Gap: Temporal Preferences and Nuclear Negotiations

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North Korea an unlikely proliferator: low nuclear capacity

Negotiated solutions failed because of commitment problems

Low capacity creates a bargaining problem

North Korea proliferated *because* of its low capacity, not despite it

Agreements only possible when nonproliferator's maximum acceptable concession is larger than proliferator's minimum necessary concession

Harder to achieve when proliferator is more patient than nonproliferator

Longer development times exacerbate patience gap

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And they are expensive

And they impose externalities

Let's represent these incentives as follows:

1. $b > 0$: benefits to proliferating
2. $c > 0$: cost to build
3. $e > b$: externality to nonproliferator
4. $\delta_i \in [0, 1]$: i's temporal discount for each period
5. $t \geq 0$: number of periods of delay until weapon built

Let x be a transfer from nonproliferator to proliferator

Make deals "easy" by supposing they are binding

Proliferator needs $x \geq \delta_P^t b - c$ to accept

Nonproliferator pays x to secure a deal

It finds a deal acceptable if $-x \geq -\delta_N^t e$

So a deal requires $x \leq \delta_N^t e$

From last two slides, we need $x \geq \delta_P^t b - c$ and $x \leq \delta_N^t e$

Only possible if $\delta_P^t b - c \leq \delta_N^t e$

Guaranteed to hold if nonproliferator is more patient than proliferator

But can fail if proliferator is more patient and externality is not too much larger than benefit

Standard perspective: autocratic regimes have longer time horizons than democracies

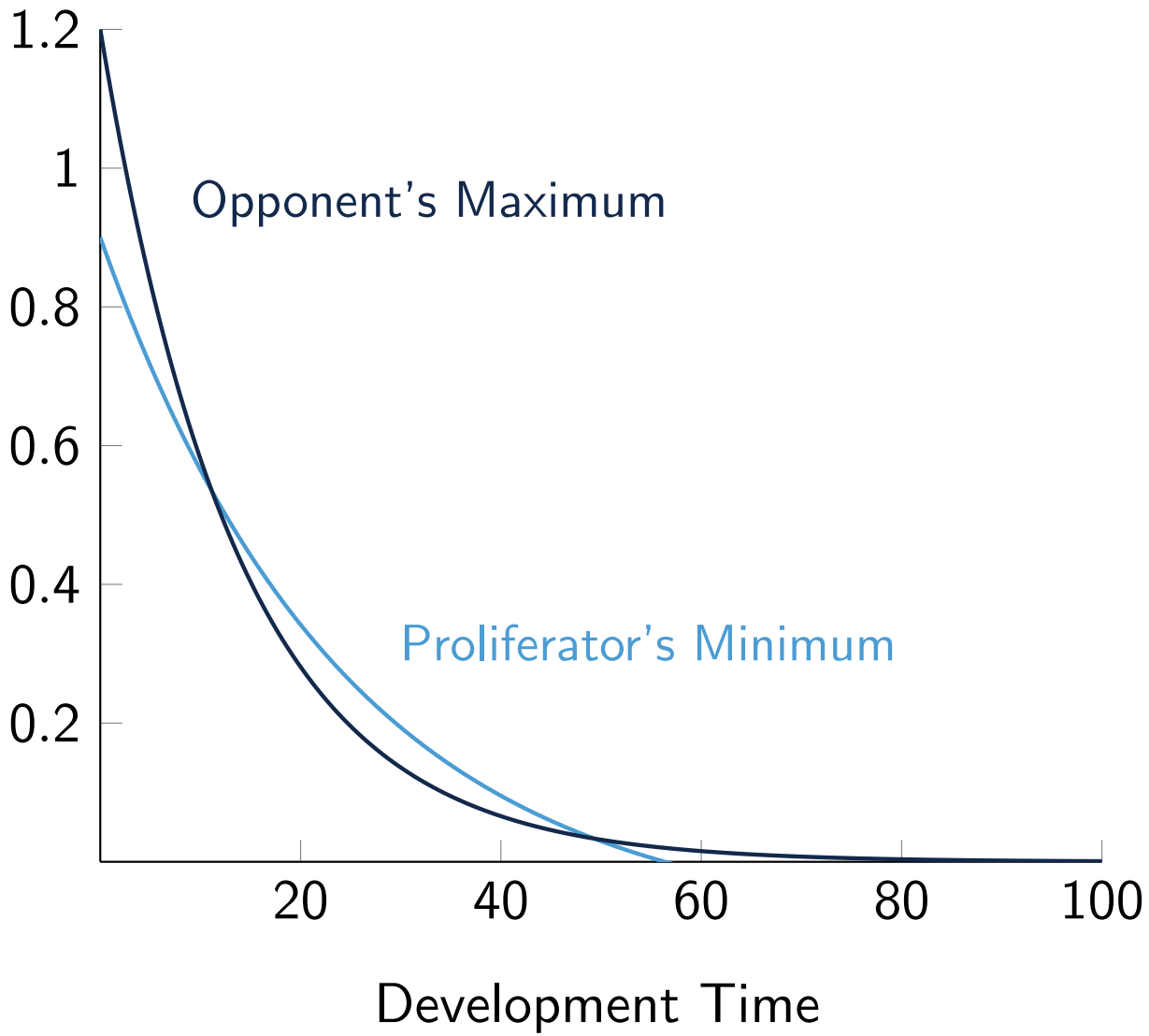
Length of NK leader tenures: 24 years, 17 years, 7+ years

Length of US leader tenures: 4 or 8 years

Deals most likely to fail when development times fall in a middle range

When development is instanteous, differences in patience are irrelevant

When development takes forever, neither places any value in post-proliferation time frames


1.2
1
0.8
0.6
0.4
0.2
Opponent's Maximum
Proliferator's Minimum
20
40
60
80
100
Development Time

Almost no domestic know-how at beginning of exploration

Little foreign assistance on major nuclear hurdles

Slow at every step of the way: e.g., 50 years to produce enough plutonium for 10 bombs

Paltry U.S. offers

North Korea demonstrating high reservation values despite technical limitations

Agreements may be impossible when proliferator is more patient than nonproliferator

Longer proliferation times exacerbate problem

Helps explain North Korea's nuclear arc

Thanks!

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