Threats and Assurances in Crisis Bargaining

Appendix 1: Formal Model

Andrew H. Kydd
Roseanne W. McManus
December 29, 2014

1 Complete Information

The players bargain over $X = [0, 1]$. They have continuous differentiable utility functions $u_1(x)$ and $u_2(x)$ where $u_1'(x) > 0$ and $u_2'(x) < 0$. We normalize the utility functions so that $u_1(0) = u_2(1) = 0$ and $u_1(1) = u_2(0) = 1$. Player 1’s war payoff is $p(x) - c_1$ and player 2’s is $1 - p(x) - c_2$. We assume $p(x)$ is continuous, differentiable and increasing, $p'(x) > 0$, and $c_i > 0$. Since $p(x)$ is a probability, we also assume that $p(0) \geq 0$ and $p(1) \leq 1$. Therefore the war payoffs are strictly less than 1 for all values of $x$.

A player’s bottom line in the baseline game, denoted $b_i$, is the worst deal it would accept rather than fight. For player 1, $b_1$ is the lowest value of $x$ such that $u_1(x) \geq p(x) - c_1$. For player 2, $b_2$ is the highest value of $x$ such that $u_2(x) \geq 1 - p(0) - c_2$. Continuity and the slope assumptions assure the existence and uniqueness of $b_i$.

Solving the game via backwards induction, player 1 will not attack if $u_1(x) \geq p(x) - c_1$, and player 2 will be willing to pick player 1’s bottom line if $u_2(b_1) \geq 1 - p(0) - c_2$.

The equilibrium will be peaceful if $b_1 < b_2$. From the definition of $b_1$, we know that $u_1(b_1) = p(b_1) - c_1$. If $u_1(x) + u_2(x) \geq 1$, we know that $u_1(b_1) \geq 1 - u_2(b_1)$. Combined with
Table 1: Types in The Model with Incomplete Information

<table>
<thead>
<tr>
<th>Player</th>
<th>Type</th>
<th>Utility Function</th>
<th>Bottom Line</th>
<th>Prior Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Player 1</td>
<td>Low</td>
<td>$u_1^l(\cdot)$</td>
<td>$b_1^l$</td>
<td>$l_1$</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>$u_1^m(\cdot)$</td>
<td>$b_1^m$</td>
<td>$m_1$</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>$u_1^h(\cdot)$</td>
<td>$b_1^h$</td>
<td>$h_1$</td>
</tr>
<tr>
<td>Player 2</td>
<td>Low</td>
<td>$u_2^l(\cdot)$</td>
<td>$b_2^l$</td>
<td>$l_2$</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>$u_2^h(\cdot)$</td>
<td>$b_2^h$</td>
<td>$h_2$</td>
</tr>
</tbody>
</table>

the previous equation, we know that $1 - u_2(b_1) \leq p(b_1) - c_1$, or $u_2(b_1) \geq 1 - p(b_1) + c_1$. Player 2’s war payoff is $1 - p(0) - c_2$. Player 2 will prefer peace to war if $1 - p(b_1) + c_1 \geq 1 - p(0) - c_2$, or if $c_1 + c_2 \geq p(b_1) - p(0)$. This proves Proposition 1.

2 Incomplete Information

There are three types of player 1, one with a lower baseline bottom line, one with a middle bottom line, and one with a higher one. They can be distinguished by their utility functions, $u_1^l(\cdot)$, $u_1^m(\cdot)$ and $u_1^h(\cdot)$, which produce bottom lines ordered such that $b_1^l < b_1^m < b_1^h$. The prior likelihood of the low-bottom-line player 1 is $l_1$, of the middle $m_1$, and of the high $h_1$, where $l_1$, $m_1$, and $h_1$ are all between 0 and 1, and $l_1 + m_1 + h_1 = 1$. Let there also be two types of player 2, with utility functions $u_2^l(\cdot)$ and $u_2^h(\cdot)$, bottom lines $b_2^l < b_2^h$, a probability of $l_2$ that player 2 has the lower bottom line, and a probability of $h_2$ that it has the higher bottom line, where $l_2, h_2 \in (0, 1)$ and $l_2 + h_2 = 1$. Assume that the relationship between the bottom lines is as follows.

$$b_1^l < b_2^l < b_1^m < b_2^m < b_1^h < b_2^h$$  (1)

This implies that there are deals that the low-bottom-line type of player 1 and either type of player 2 would prefer to war. The middle type of player 1 would be willing to live with a deal acceptable to the high-bottom-line type of player 2, but, absent any assurances, not
with a deal acceptable to the low-bottom-line type of player 2. Finally, the high-bottom-line type of player 1 cannot live in peace with either type of player 2 unless it can make powerful assurances.

When combining threats and assurances, player 1’s bottom line is defined as follows.

**Definition 1** $B_{t1}^a$, the smallest level of $x$ that player 1 will accept rather than fight having made a threat and an assurance at $g_1$, is defined as follows.

- If $g_1 < b_1^a$, then $B_{t1}^a = b_1^a$
- If $g_1 \in [b_1^a, b_1^l]$, then $B_{t1}^a = g_1$
- If $g_1 > b_1^l$, then $B_{t1}^a = b_1^l$

This can be further superscripted for each of the three types, for instance, $B_{t1}^l$ would be $b_1^a$ if $g_1 < b_1^a$, $g_1$ if $g_1$ is in between $b_1^a$ and $b_1^l$, and $b_1^l$ if $g_1 > b_1^l$, and similarly for $B_{t1}^m$ and $B_{t1}^h$.

### 2.1 A Fully Separating Equilibrium

There are many possible equilibria in the incomplete information version of the game. We describe two which illustrate some interesting possible patterns of behavior. First, consider a fully separating equilibrium, as described in Table 2. In this equilibrium, the low-bottom-line type of player 1 is content to get the most it can from the most resolved type of player 2 by demanding either that type’s bottom line, or the most it can threaten for, whichever is less, $g_1 = \min(b_2^l, b_1^{lt})$. This encourages both types of player 2 to make a larger grab and set $x = \min(b_2^l, b_1^{lt})$, but there is no danger of war. The middle type of player 1 makes a threat and an assurance around the high type of player 2’s bottom line (or the most it can threaten for), $g_1 = \min(b_2^h, b_1^{mt})$. This involves taking a risk because the more resolved type of player 2 will reject this threat and implement $x = 0$, inviting a war. Finally, the high-bottom-line type of player 1 threatens at $g_1 = \min(b_2^h, b_1^{mt})$ but offers no assurance, which leads to war.
Table 2: Informative Assurances Equilibrium

<table>
<thead>
<tr>
<th>Player/Choice</th>
<th>Type</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Player 1:</td>
<td>Low</td>
<td>Threat at ( g_1 = \min(b_l^2, b_l^I) )</td>
</tr>
<tr>
<td>Threat</td>
<td>Middle</td>
<td>Threat and assurance at ( g_1 = \min(b_h^2, b_H^mt) )</td>
</tr>
<tr>
<td>Assurance</td>
<td>High</td>
<td>Threat (no assurance) at ( g_1 = \min(b_h^2, b_H^mt) )</td>
</tr>
<tr>
<td>Player 2:</td>
<td>Low</td>
<td>If threat at ( g_1 = \min(b_l^2, b_l^I) ), set ( x = \min(b_l^2, b_l^I) ) Other wise, implement ( x = 0 )</td>
</tr>
<tr>
<td>Choice of x</td>
<td>High</td>
<td>If threat at ( g_1 = \min(b_l^2, b_l^I) ), set ( x = \min(b_l^2, b_l^I) ) If threat and assurance at ( g_1 = \min(b_h^2, b_H^mt) ), set ( x = \min(b_h^2, b_H^mt) ) Otherwise, implement ( x = 0 )</td>
</tr>
<tr>
<td>Player 1:</td>
<td>Low</td>
<td>Not Attack if ( x \geq B_l^ta ), Attack otherwise</td>
</tr>
<tr>
<td>Attack or</td>
<td>Middle</td>
<td>Not Attack if ( x \geq B_m^mta ), Attack otherwise</td>
</tr>
<tr>
<td>Not Attack</td>
<td>High</td>
<td>Not Attack if ( x \geq B_h^mta ), Attack otherwise</td>
</tr>
</tbody>
</table>

Each type of player 1 pursues a unique strategy, so the equilibrium is fully separating. Player 2 will know player 1’s type with certainty when it has to move.\(^1\)

In this equilibrium, the threats and assurances are all credible, and player 1 never lies. The low-resolve type of player 1 makes a modest threat. This type has no need to make an assurance because its small threat is enough to identify its type to player 2. The middle type makes a larger threat along with an assurance. The assurance serves to distinguish the middle type from the high type. The high-resolve type makes an equally large threat, but does not offer an assurance because this would either lock it into an outcome it likes less than war or force it to pay too high a reputational cost for violating its assurance.

When is this equilibrium possible? Player 1’s final move follows straightforwardly from backwards induction. Each type of player 1 will not attack if player 2 implements its bottom line or better, factoring in any threats and assurances that have been made, and attack otherwise. Since player 2 knows what type it is dealing with after player 1 moves, it tailors its response accordingly. If player 1 is the low-resolve type, both types of player 2 will prefer

\(^1\)Off the equilibrium path, for any move other than the three expected from each type, we assume that player 2’s beliefs shift to the most resolved type of player 1, \( b_h^I \).
to buy it off with \( x = \min(b_2', b_1') \) rather than set \( x = 0 \) and invite a war, since this level is better than both types’ bottom lines. If player 1 is the middle-resolve type who demands \( g_1 = \min(b_2^h, b_1^m) \), the tougher type of player 2 will reject this and implement \( x = 0 \), while the less resolved type will accept this and implement \( x = \min(b_2, b_1') \). Finally, if player 1 is the high-resolve type, both types of player 2 will implement \( x = 0 \) because there is no deal preferred to war by either type of player 2 and the highest bottom-line type of player 1. Note, player 2’s prior beliefs do not matter in this equilibrium because the signaling is perfectly informative. Player 2 could start out very suspicious of player 1 (high \( h_1 \)), but the assurance, if offered, would convince it that it is facing the middle type. Under such conditions, this equilibrium could be the only way to avoid an outcome where player 2 sets \( x = 0 \) and invites war.

The remaining question is whether each type of player 1 prefers to play its part of the strategy at the outset or deviate in some fashion. First consider the low-bottom-line type of player 1, with bottom line \( b_1' \). It must prefer to get \( u_1'(\min(b_2', b_1')) \) for sure rather than imitate the middle type and get a higher payoff if player 2 is the weaker type and war if it is not, for a payoff of \( l_2(p_1(0) - c_1) + (1 - l_2)u_1'(\min(b_2, b_1^m)) \). Following the equilibrium strategy beats imitating the middle type if

\[
l_2 \geq l_2^* \equiv \frac{u_1'(\min(b_2', b_1^m)) - u_1'(\min(b_2, b_1^m))}{u_1'(\min(b_2^h, b_1^m)) - (p_1(0) - c_1)}
\]

Therefore, if the likelihood of facing the more resolved type of player 2, \( l_2 \), is high enough, then the least resolved type of player 1 will be content to play it safe, self-identify as weak, and only demand as much as it can. This type of player 1 is also always content to not imitate the highest bottom line type of player 1, since that would precipitate a war for sure at \( p(0) - c_1 \), while its equilibrium strategy gives it an outcome better than its bottom line.

Second, we consider the middle-bottom-line type of player 1. This type must prefer to risk war with the more resolved type of player 2 rather than settle for less. If it were to
imitate the low-resolve type, there are two possibilities. In the first case, the middling type could make itself prefer peace at the lower level via an assurance if it chose to, that is, 

\( b_{1}^{ma} \leq \min(b_{2}^{l}, b_{1}^{mt}) \). In this case, if it chose to imitate the lower resolve type it would also not attack in the end, so the condition is just the reverse of the previous one.

\[
l_2 \leq l_2^{m*} \equiv \frac{u_{1}^{m}(\min(b_{2}^{h}, b_{1}^{mt})) - u_{1}^{m}(\min(b_{2}^{l}, b_{1}^{mt}))}{u_{1}^{m}(\min(b_{2}^{l}, b_{1}^{mt})) - (p_{1}(0) - c_{1})} \quad (3)
\]

What if the middling type of player 1 were not able to bind itself to not attack with the assurance? In that case it would attack and pay the reputation cost after player 2 implements \( \min(b_{2}^{l}, b_{1}^{mt}) \), for a payoff of \( p(\min(b_{2}^{l}, b_{1}^{mt})) - c_{1} - \alpha_{a} \). Fulfilling its equilibrium strategy would give \( l_2(p_{1}(0) - c_{1}) + (1 - l_2)u_{1}^{m}(\min(b_{2}^{h}, b_{1}^{mt})) \). The equilibrium strategy beats the deviation if the following holds.

\[
l_2 \leq l_2^{m**} \equiv \frac{u_{1}^{m}(\min(b_{2}^{h}, b_{1}^{mt})) - (p(\min(b_{2}^{l}, b_{1}^{mt})) - c_{1} - \alpha_{a})}{u_{1}^{m}(\min(b_{2}^{l}, b_{1}^{mt})) - (p(0) - c_{1})} \quad (4)
\]

The middle type of player 2 must also prefer its equilibrium strategy to mimicking the high-resolve type and precipitating a war for sure. This means that \( l_2(p_{1}(0) - c_{1}) + (1 - l_2)u_{1}^{m}(\min(b_{2}^{h}, b_{1}^{mt})) \) must beat \( p(0) - c_{1} \), which it does by assumption, since the middling type will do better than its bottom line if player 2 accepts.

Lastly, we consider the high-resolve type of player 1. It must prefer to fulfill its equilibrium strategy, getting \( p(0) - c_{1} \), to imitating either of the less resolved types. Consider deviations to the middle-resolve type's strategy. If the high-resolve type could make itself willing to live with \( \min(b_{2}^{h}, b_{1}^{mt}) \) by an assurance, if \( b_{1}^{ha} \leq \min(b_{2}^{h}, b_{1}^{mt}) \), it’s payoff for mimicking the middle type would be \( l_2(p_{1}(0) - c_{1}) + (1 - l_2)u_{1}^{h}(\min(b_{2}^{h}, b_{1}^{mt})) \). The equilibrium strategy is preferable if the following holds.

\[
u_{1}^{h}(\min(b_{2}^{h}, b_{1}^{mt})) \leq p(0) - c_{1} \quad (5)
\]

If, in contrast, the high-bottom-line type cannot make itself willing to live with the middling
demand even with an assurance, it would attack afterwards and pay the penalty, for a payoff of 
$l_2(p(0) - c_1) + (1 - l_2)(p(\min(b_2^h, b_1^{mt})) - c_1 - \alpha_a)$. The equilibrium strategy beats this if 
the following holds.

$$p(\min(b_2^h, b_1^{mt})) - p(0) \leq \alpha_a$$

One can easily show that if the high-resolve type will not prefer to imitate the middle-resolve 
type, it will also not prefer to imitate the low-resolve type, so these are the conditions that 
bind.\[2\]

2.2 A Partially Separating Equilibrium

In this equilibrium, illustrated in Table 3, the low and middle-resolve types of player 1 both 
behave the same as before. The difference is that here the high-resolve type of player 1 
mimics the middle type by making a threat and assurance at an equilibrium level at an 
equilibrium level $g_1 = x^*$, which will be derived below. The high-resolve type also attacks 
on the equilibrium path, so it violates its assurance.

In this equilibrium, the types separate on threats but pool on assurances. Threats are 
informative because they raise player 1’s bottom line and enable the middle-bottom-line 
type of player 1 to distinguish itself from the low type. The assurances given by the middle 
and high-bottom-line types, in contrast, are not informative, since both types pool on the 
same goal, $g_1 = x^*$, accompanied by an assurance (as well as a threat). The absence of an 
assurance would be informative, and, off the equilibrium path, would cause player 2 to believe it 
was facing the high-bottom-line type of player 1, leading to war. However, the presence 
of the assurance is not actually reassuring, since it does not alter the relative likelihood of 
facing a middle or high-resolve type. Thus, this equilibrium may shed light on cases where 
disingenuous assurances are offered, not in the expectation that they will be believed, but 
because their absence would be informative and provocative.

When is this equilibrium possible? Player 1’s final decision is again straightforward

\[2\]The corresponding equations are $u_1^h(\min(b_2^h, b_1^{mt})) \leq p(0) - c_1$ and $p(\min(b_2^h, b_1^{mt})) - p(0) \leq \alpha_a$.\[2\]
Table 3: Uninformative Assurances Equilibrium

<table>
<thead>
<tr>
<th>Player/Choice</th>
<th>Type</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Player 1:</td>
<td>Low</td>
<td>Threat at $g_1 = \min(b^l_2, b^l_1)$</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>Threat and assurance at $g_1 = x^*$</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Threat and assurance at $g_1 = x^*$</td>
</tr>
<tr>
<td>Player 2:</td>
<td>Low</td>
<td>If threat at $g_1 = \min(b^l_2, b^l_1)$, set $x = \min(b^l_2, b^l_1)$ Otherwise, implement $x = 0$</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>If threat at $g_1 = \min(b^l_2, b^l_1)$, set $x = \min(b^l_2, b^l_1)$ If threat and assurance at $g_1 = x^<em>$, set $x = x^</em>$ Otherwise, implement $x = 0$</td>
</tr>
<tr>
<td>Player 1:</td>
<td>Low</td>
<td>Not Attack if $x \geq B^{ita}_{lta}$, Attack otherwise</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>Not Attack if $x \geq B^{mta}_{lta}$, Attack otherwise</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Not Attack if $x \geq B^{hta}_{lta}$, Attack otherwise</td>
</tr>
</tbody>
</table>

from backwards induction; it will attack if its bottom line is not met. If player 2 observes $g_1 = \min(b^l_2, b^l_1)$, it knows it is dealing with the low-resolve type of player 1, and both types of player 2 will be willing to accommodate that. This much is common to the fully separating equilibrium.

If player 2 observes $g_1 = x^*$, however, it will remain uncertain about whether it is dealing with the middle or high-resolve type of player 1. From Bayes’ rule, player 2’s posterior belief that it faces the middle-resolve type will be $\frac{m_1}{m_1 + h_1}$ and it will assess a $\frac{h_1}{m_1 + h_1}$ chance that it faces the high type. Note, both of these beliefs are higher than they were, since the low-bottom-line type has been ruled out. That is, player 2 thinks it more likely that player 1 is the middle type, as well as more likely that it is the high type. The ratio between these beliefs is the same as it was before, $\frac{h_1}{m_1}$, so the odds of facing the high type as opposed to the middle type are the same.

How will player 2 respond to this new but inconclusive information? The low-bottom-line type of player 2 will prefer to set $x = 0$ and invite attack, which it would have done in the previous equilibrium for either the middle or high-bottom-line types of player 1. The high-bottom-line type of player 2 will prefer to take a chance by implementing $x^*$ if the payoff
for doing so beats the payoff for setting $x = 0$ and inviting a war,  

\[
\frac{m_1}{m_1 + h_1} u_2^b(x^*) + \frac{h_1}{m_1 + h_1} (1 - p(x^*) - c_2) \geq 1 - p(0) - c_2,
\]

which can be reexpressed as follows.

\[
\frac{m_1}{m_1 + h_1} (u_2^b(x^*) - (1 - p(x^*) - c_2)) \geq p(x^*) - p(0)
\]  

(7)

We know the right-hand side is positive here, since $p(x)$ is increasing in $x$. To satisfy the condition, the left-hand side must be larger. The term in parentheses must therefore be positive, so player 2 must prefer the peaceful outcome, $x^*$, to war at $x^*$. Finally, the likelihood of facing the middling type of player 1,  

\[
\frac{m_1}{m_1 + h_1},
\]

must be high enough as well. If player 2 thinks the likelihood of facing the high type of player 1 is too great, it will not be willing to implement $x^*$ and instead will choose $x = 0$ and invite a war. The highest level of $x$ that will satisfy this equation will be the equilibrium value $x^*$, since player 1 will wish this to be as high as possible and still be accepted by player 2.

**Definition 2** $x^*$ is the largest value of $x$ that satisfies Equation 7.

Note that this would not work if $x^*$ was as high as $b_2^h$ because this gives player 2 the same as the war payoff, by definition, and the war payoff at $x^*$ is worse for player 2 than the war payoff at 0, which determines its bottom line. Therefore, since there is a chance that player 1 will attack after being accommodated, the equilibrium $x^*$ must be more generous to player 2 than its bottom line, so $x^* < b_2^h$.

Finally, we consider player 1’s initial choices. The low-bottom-line type of player 1 faces the exact same options as before, play its equilibrium strategy or gamble on the higher demand, so the condition will be the same with $x^*$ substituted in for $\min(b_2^b, b_{1f}^m)$. The middle-bottom-line type also faces the same choices as in the previous equilibrium and resolves them the same way. The difference here is that the high-bottom-line type both mimics the middle-bottom-line type in terms of its threat and assurance, and then subsequently reneges on the assurance and attacks. To be willing to renege on the assurance and attack, it must be that $x^* < b_1^{ha}$. To be willing to mimic the middle-bottom-line type in that case, it must be
\[ l_2(p(0) - c_1) + (1 - l_2)(p(x^*) - c_1 - \alpha_a) > p(0) - c_1, \text{ or} \]

\[ p(x^*) - p(0) > \alpha_a \]  

which is just the reverse of Equation 6.

A final interesting aspect of this equilibrium is that under the same conditions, the middle and high types of player 1 could just as easily have pooled on giving no assurances. Since the high type of player 2 is willing to accept the offer with no new information, whether the different types of player 1 pool on assurances or no assurances does not matter. In this sense, these disingenuous assurances maybe driven by convention rather than any strategic necessity. However, certain equilibrium refinements could eliminate the pooling on no assurance equilibrium, if an assurance is assumed to be at least somewhat more likely to come from the moderate type.
Appendix 2: Quantitative Analysis of Statements

This section of the appendix describes how the data on threatening and assuring phrases in US presidential statements were obtained. We used the same set of statements utilized by McManus (2014), except while McManus (2014) analyzes statements made in all US dyadic MIDs between 1950 and 2010, in this article we focus only on statements made in US-Soviet dyadic MIDs between 1950 and 1989. This gives us a sample of 51 dyadic MIDs (Maoz 2005). Statements made in the context of each dyadic MID were obtained from the *Public Papers of the Presidents of the United States* (Peters and Woolley 2014). A statement was considered to be made in the context of a dyadic MID if it was about the dyadic MID adversary and was made during the dyadic MID or within 30 days before. The process of identifying these statements began with searching the *Public Papers* for references to the adversary in each dyadic MID within the specified timeframe. Out of the search results, statements that were not spoken by the president personally and paragraphs that were not about the adversary were excluded.

The content analysis dictionaries used to measure threats and assurances in this set of statements were created through inductive processes, which involved reading through a large body of statement text, identifying words or phrases related to the concepts of interest, adding these items to the dictionary, and checking for false positive results. For measuring both concepts, we created both broad and narrow dictionaries. The narrow dictionaries only include explicitly threatening and assuring words and phrases, while the broad dictionaries also include words and phrases associated with more implicit threats and assurances. Because US presidents very rarely make explicit threats or assurances, it is useful to look at implicit phrasing as well in order to get a more complete picture of international communication.
The dictionaries measuring threatening phrases are based on the dictionary used by McManus (2014) to measure statements of resolve. McManus’s (2014) dictionary divides words and phrases into three categories: those associated with explicit threats, those associated with demands or refusals, and those associated with negative characterizations of a situation or another state’s behavior. The narrow threat dictionary used in this article includes only the words and phrases categorized by McManus (2014) as being associated with explicit threats. In contrast, the broader threat dictionary used in this article contains all three categories of words and phrases in McManus’s (2014) dictionary. In fact, this dictionary is identical to McManus’s (2014) dictionary, except there is no weighting. Although McManus’s (2014) concept of statements of resolve includes more than just explicit threats, even the more implicit words and phrases included in her dictionary can create an expectation of forceful action, raising the potential for audience costs if this expectation is not fulfilled.

The dictionaries measuring assuring phrases were created specifically for this article. The narrower assurance dictionary only includes the words and phrases associated with explicit assurances that the United States would not attack if the adversary complied with its demands. The broader assurance dictionary also includes words and phrases that give implicit assurance by indicating a general cautious, peaceful, or cooperative approach. Each of the assurance dictionaries contains fewer items than the corresponding threat dictionary, but this is because fewer assuring phrases could be found to add to the dictionary in our reading of the statements.

To compare the number of threatening and assuring phrases, we simply counted the number of each type of phrase in each dyadic MID using the Yoshikoder content analysis program and then added up the totals for all 51 MIDs. Using the broad dictionaries, we found that US presidents issued 2,964 threatening phrases and 1,264 assuring phrases over the course
of the 51 MIDs. Using the narrow dictionaries, we found 117 threatening phrases and 6 assuring phrases.

**Dictionaries**

The full dictionaries are given below. Spaces were removed from the included phrases because the *Yoshikoder* content analysis program cannot search for spaces. A * indicates a wildcard.

Note that some of these words are typically used in the negative sense. For example, presidents often say, “We will not fail,” but almost never say, “We will fail.” Therefore, “fail” is considered to be a word associated with implicit threats. Likewise, the president almost never says he does “want war,” but rather that he does *not* “want war” or that *no one* “wants war.” Therefore, these phrases mentioning war are in the assurance dictionaries.

### Narrow Assurance Dictionary

<table>
<thead>
<tr>
<th>bear no hostility</th>
<th>first choice</th>
<th>last resort</th>
</tr>
</thead>
<tbody>
<tr>
<td>choice he faces</td>
<td>forced upon us</td>
<td>shot fired</td>
</tr>
<tr>
<td>choice is his</td>
<td>in the court</td>
<td>that is up</td>
</tr>
<tr>
<td>choice is theirs</td>
<td>in their court</td>
<td>that is up</td>
</tr>
<tr>
<td>choice of war</td>
<td>in their hands</td>
<td>want war</td>
</tr>
<tr>
<td>choice to make</td>
<td>is up</td>
<td>want war</td>
</tr>
<tr>
<td>decision is up</td>
<td>its up</td>
<td></td>
</tr>
<tr>
<td>face s each choice</td>
<td>last option</td>
<td></td>
</tr>
</tbody>
</table>
**Narrow Threat Dictionary**

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>*notrule</td>
<td>necessarysteps</td>
</tr>
<tr>
<td>*notruleout</td>
<td>notgoingtorule</td>
</tr>
<tr>
<td>actionisnecessary</td>
<td>notruled</td>
</tr>
<tr>
<td>actionnecessary</td>
<td>notruledout</td>
</tr>
<tr>
<td>actionsarenecessary</td>
<td>notruling</td>
</tr>
<tr>
<td>actionsnecessary</td>
<td>notrulingout</td>
</tr>
<tr>
<td>compel</td>
<td>peril</td>
</tr>
<tr>
<td>consequence*</td>
<td>preparedtoact</td>
</tr>
<tr>
<td>decisive*</td>
<td>preparedtouseforce</td>
</tr>
<tr>
<td>defeat*</td>
<td>price</td>
</tr>
<tr>
<td>everythingnecessary</td>
<td>readytouseforce</td>
</tr>
<tr>
<td>meansarenecessary</td>
<td>repel</td>
</tr>
<tr>
<td>meansnecessary</td>
<td>responseisnecessary</td>
</tr>
<tr>
<td>necessaryaction*</td>
<td>rulednothing</td>
</tr>
<tr>
<td>necessarymeans</td>
<td>ruledout</td>
</tr>
<tr>
<td>necessaryresponse</td>
<td>rulenothing</td>
</tr>
</tbody>
</table>

- rulingout
- ruleout
- rulingnothing
- stepsarenecessary
- stepsnecessary
- takeaction
- takemilitaryaction
- timeisup
- whateveraction*
- whateverisnecessary
- whateverisneeded
- whateverisrequired
- whateverittakes
- whatevermeans
- whatevermust
- willfight
Broad Assurance Dictionary

argument is not with
avenues
bear no hostility
calm*
cautio*
choice he faces
choice is his
choice is theirs
choice of war
choice to make
confrontation*
constructive engagement
decision is up
destiny of other nations
dialog*
diplomacy
diplomatic*
earnest*
every alternative
faces a choice
first choice
flexible
forbearance
forced upon
good faith
good will
hand of friendship
hand out
hands out
harmony
heighten tension*
internal affairs
in the court
in their court
in their hands
its up
its up
last option
last resort
limited objective*
egotiated settlement*
no argument with
no quarrel with
one way or another
out at hand
partnership
reciprocity
reconciliation
restrained
restraint
seek no advantage
shot fired
sincere*
solution*
that is up
that is up
toward the citizens
toward the people
wait and see
want war
want war
without conditions
### Broad Threat Dictionary

<table>
<thead>
<tr>
<th>Term</th>
<th>Term</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>notaccept</em></td>
<td>callupon</td>
<td>everythingnecessary</td>
</tr>
<tr>
<td><em>notallow</em></td>
<td>churchill</td>
<td>evil*</td>
</tr>
<tr>
<td><em>notbeaccept</em></td>
<td>cleansing</td>
<td>expansionist</td>
</tr>
<tr>
<td><em>notbeallowed</em></td>
<td>clearandpresent</td>
<td>expect</td>
</tr>
<tr>
<td><em>notbepermitted</em></td>
<td>coercion</td>
<td>exploit*</td>
</tr>
<tr>
<td><em>notpermit</em></td>
<td>coldblooded*</td>
<td>fail</td>
</tr>
<tr>
<td><em>notrule</em></td>
<td>compel</td>
<td>falter</td>
</tr>
<tr>
<td><em>notruleout</em></td>
<td>condemn*</td>
<td>fedup</td>
</tr>
<tr>
<td>abandon</td>
<td>confident</td>
<td>firm*</td>
</tr>
<tr>
<td>abet*</td>
<td>consequence*</td>
<td>flagrant*</td>
</tr>
<tr>
<td>abhor*</td>
<td>crime*</td>
<td>flout*</td>
</tr>
<tr>
<td>abus*</td>
<td>cruel*</td>
<td>futile</td>
</tr>
<tr>
<td>accountable</td>
<td>cynical*</td>
<td>genocid*</td>
</tr>
<tr>
<td>actionisnecessary</td>
<td>decisive*</td>
<td>grave</td>
</tr>
<tr>
<td>actionnecessary</td>
<td>defeat*</td>
<td>gravity</td>
</tr>
<tr>
<td>actionsarenecessary</td>
<td>defend*</td>
<td>gross</td>
</tr>
<tr>
<td>actionsnecessary</td>
<td>defiance</td>
<td>grounds</td>
</tr>
<tr>
<td>aggression</td>
<td>defy*</td>
<td>guilty</td>
</tr>
<tr>
<td>aggressor*</td>
<td>demand*</td>
<td>harbor*</td>
</tr>
<tr>
<td>alarming</td>
<td>deplor*</td>
<td>hitler</td>
</tr>
<tr>
<td>amcommitted</td>
<td>despot*</td>
<td>horrible</td>
</tr>
<tr>
<td>americascommitment*</td>
<td>destabilize</td>
<td>horrif*</td>
</tr>
<tr>
<td>amresolved</td>
<td>deter</td>
<td>hostile</td>
</tr>
<tr>
<td>angry</td>
<td>determination</td>
<td>hypocri*</td>
</tr>
<tr>
<td>appeas*</td>
<td>determined</td>
<td>illegal*</td>
</tr>
<tr>
<td>arecommitted</td>
<td>disagree*</td>
<td>illusion*</td>
</tr>
<tr>
<td>arrogan*</td>
<td>disappoint*</td>
<td>immoral*</td>
</tr>
<tr>
<td>atrocit*</td>
<td>disapprov*</td>
<td>imperial*</td>
</tr>
<tr>
<td>barbaric*</td>
<td>disgust*</td>
<td>implor*</td>
</tr>
<tr>
<td>belligerence</td>
<td>disturbed</td>
<td>impurity</td>
</tr>
<tr>
<td>blackmail</td>
<td>disturbing</td>
<td>inconsistent</td>
</tr>
<tr>
<td>blatant*</td>
<td>doubt</td>
<td>inhuman*</td>
</tr>
<tr>
<td>bloodshed</td>
<td>duty</td>
<td>insidious</td>
</tr>
<tr>
<td>brutal*</td>
<td>endanger</td>
<td>insist*</td>
</tr>
<tr>
<td>bully*</td>
<td>endur*</td>
<td>intimidat*</td>
</tr>
<tr>
<td>callfor</td>
<td>enem*</td>
<td>intolerable</td>
</tr>
<tr>
<td>callon</td>
<td>error</td>
<td>intransigen*</td>
</tr>
</tbody>
</table>
invader* irresponsible
itistime justice lie*
likethink loathsome lying
mad massacrer*
meansarenecessary
meansnecessary
menacer*
misapprehension miscalculat*
mistake*
misunderstand moral
murder* mustact
myresolve necessaryaction*
necessarymeans necessaryresponse
necessarysteps neverallow
nevergrant nevergrant
noncompliance nonnegotiation*
nonnegotiable notgoingtoallow
notgoingtopermit notgoingtorule
notintendtoallow notintendtopermit
notnegotia* notruled
notruledout notruled
notruuling notruulingout
obligat* obstruct*
oppress* ourcommitment*
ourresolve outlaw
outrage* peril
persecut* persevere
persist pledge*
preparedtoact preparedtouseforce
prevail prevent
price promise*
provo
c
rape raping
readytoact
readytouseforce reaffirm
reckless*
regret*
reject*
repel repress*
resist resolute
responseisnecessary
revulsion rogue
rulednothing ruledout
ruledout
ruledout nothing
ruleout rulingnothing
rulingout runningout ruthless*
sanctuar*
savage*
scom*
she
ter*
shocked
shocking
slaughter*
steak*
stand
staythecourse stead*
stepsarenecessary
strong*
subjugat*
subver*
suppress*
takeaction
takemilitaryaction
terrible
terroriz*
threat
threaten*
timesisathand
timesup	
tolerate*
totalitarian*
tragedy
troubled
troubling
tyran*
unacceptable
unambiguous*
uncivilized
unconscionable
underanycircumstances
underestimate
<table>
<thead>
<tr>
<th>Term</th>
<th>Synonym</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>unequivocal*</td>
<td>unwavering</td>
<td>wanton</td>
</tr>
<tr>
<td>unfortunate</td>
<td>unyielding</td>
<td>warn*</td>
</tr>
<tr>
<td>unitedstatescommitment*</td>
<td>upset*</td>
<td>whateveraction*</td>
</tr>
<tr>
<td>unjustifi*</td>
<td>urge</td>
<td>whateverisnecessary</td>
</tr>
<tr>
<td>unprovoked</td>
<td>vicious*</td>
<td>whateverisneeded</td>
</tr>
<tr>
<td>unrelenting</td>
<td>vigilan*</td>
<td>whateverisrequired</td>
</tr>
<tr>
<td>unscrupulous</td>
<td>violat*</td>
<td>whateverittakes</td>
</tr>
<tr>
<td>unshakable</td>
<td>violen*</td>
<td>whatevermeans</td>
</tr>
<tr>
<td>unswerving</td>
<td>vitalinterest</td>
<td>whatevermust</td>
</tr>
<tr>
<td>unwarranted</td>
<td>walkaway</td>
<td>willfight</td>
</tr>
</tbody>
</table>