brings the idealizations of bounded rationality down to political reality, showing that bounded rationality requires a type 2, 3 or 4 structure. However, this proposition needs further development. The bureaucratic theory is strong descriptively, and especially in explaining organizational irrationality, but its normative side remains vague.[33]*

DIVIDED GOVERNMENT: A RICHARDSON PROCESS MODEL

Probably
omit.
to
end
of
ch.

Our five types of decision-making structure lie on a continuum from greater to less internal freedom in decision-making, and from outer-orient- ation to inner-orientation. For Type 1 structures, one or two men, internal restraints are minimal and freedom is maximal. The decision-making team, Stalin-Molotov or Dulles-Eisenhower, does not have to worry about inter- ference from within the government, and so can concentrate its attention entirely on the external problem. Ina Type 2 structure the chief decision-maker, a Grey or a Curzon, can do as he pleases within vague limits set by the concerns of his colleagues. He, too, can concentrate his main attention on the external problem, but must also keep one eye on his colleagues since certain moves by him or the opponent may activate them. Moving through Types 3 to 5, other participants are more and more involved with more and more influence, and their approval must be gotten for proposed actions. Consequently, attention shifts to the internal problem of forming and re-forming coalitions and somewhat away from the external problem of dealing with an opponent, although of course the latter is not lost sight of. This shift, as we have shown, means that the bounded rationality con- cepts appropriate for Type 1 structures must be supplemented though not re- placed by bureaucratic politics and coalition concepts as we move toward Type 5 structures.

At the extreme, Type 5, the inner orientation becomes so complete that the state cannot truly bargain with the external opponent at all. It cannot because the government is so divided that no faction is able to construct a majority coalition that can choose a coherent strategy and carry it out. In other words, a Type 5 structure has no internal freedom to act and so cannot bargain. We examine Type 5 structures in this section. The purpose of the examination is to develop a formal concept of non-freedom to act and a formal model of non-bargaining. This model can serve as a polar opposite to the bargaining models of Chs. 2 and 4, all of which assume complete internal freedom to act. All actual bargaining structures fall somewhere between these two polar ideal types of complete inner freedom and no inner freedom.

The most obvious way to describe a non-actor government is to say that there is no majority coalition in it, no group able to act on its own, but only minority coalitions. But this is a negative definition, a residual category, and therefore vague. To specify the concept more exactly we examine a borderline case, Germany 1904-06, which was divided but yet had some freedom to act and which did engage in bargaining with France. There was no majority coalition in the German government but there were two minority coalitions, one centered on the Kaiser and one on Holstein. Each coalition could _intermittently_ block the other, but could also to some extent be bypassed by the other. The Kaiser could bypass the Foreign Office by dealing directly with the Tsar, though the details would eventually have to be worked out by the Foreign Office which could undo the Kaiser's plans. The Foreign Office could bypass the Kaiser by getting general approval of a policy whose details they could work out later, or by advising him to go on a cruise as in 1914, though there might be a commotion once he returned and found out what was happening. There were two actors in this bargaining unit, each with enough internal freedom to decide on and initiate a bargaining

strategy but not enough freedom to carry it out fully. A similar case which we did not study in detail is the U.S. 1944-April 1945, when various factions maneuvered to gain the attention and approval of a sick President for their sharply opposed policies.

A more precise definition of a non-actor therefore is: <u>a bargaining unit composed of two or more continuous blocking coalitions</u>. Such a unit cannot even decide on and initiate a strategy; it cannot act at all. It is always deadlocked. When it is activated by incoming signals, each minority coalition proposes a tactical response that fits its favored strategy, and is blocked by some other minority coalition. The output is always a compromise that reflects the relative strengths of the component coalitions. In other words, the output expresses directly only the internal state of the bargaining unit. The output of an actor is always to some extent a rational response to the estimated state of the bargaining opponent; it can be interpreted and understood by reference to the actor's estimates of the opponent's position, his set of goals, and his prefereed strategy. But the output of a non-actor must be understood by reference to the distribution of blocking power within it. In the following discussion we shall call such units <u>reactors</u>, since they can only react to incoming signals, not act.

<u>Reactors</u>. Our examples of reactors are France, Sept. 1923-April, 1924; Britain intermittently during Sept. 1938; France intermittently in 1938; Japan, 1940-41; U.S. 1940-41, and NATO Nov. 1961-May, 1962 over Berlin. Most of these cases are initially calssified as Type 5 and the remainder as Type 4. The discrepancy with our initial classification is due to the fact that we include two 1938 cases which were normally Type 4, but which intermittently became deadlocked. Since reactors are essentially Type 5 units, their workings can best be clarified by contrast with Type 4 actors, the actors most similar to reactors. In the following discussion, therefore, "actor" always means "Type 4 actor".

Both actors and reactors are characterized by internal bargaining, compromising, and coalition formation. There is, however, a sharp difference between the kind of compromising and coalition formation that occurs in the two. An actor is constituted when a majority or dominating coalition is formed. Such a coalition is held together by an agreement on a strategy, and this agreement in turn is based on an agreed diagnosis of the situation and an agreement on goals. Compromise therefore occurs at the level of diagnosis and goals. A compromise on goals might consist of including the most important goals of each coalition member in a list of goals; the list would be arranged in an order of importance or priority which reflects the relative weight of the coalition members associated with each goal. This list then states the expected payoff of a successful strategy for each coalition member. In forming such a list the central decision-maker compromises by accepting goals other than his own or goals of minor importance to him, while other members compromise by accepting a subordinate ranking and the possible later elimination of their primary goals.

A compromise on diagnosis could consist of including the diverse expectations of coalition members as alternative possibilities to be anticipated in the coalition strategy. The rank order of probability would then reflect the relative weight of the coalition members associated with each goal. For example, the 1958 Soviet diagnosis was that NATO pressure on East Germany might be a special project of extremists like Defense Minister Strauss, barely tolerated or even disliked by higher-ups, or it might be part of a fixed aggressive plan of the whole NATO leadership. Consequently NATO might agree to negotiate a settlement ending pressure on East Germany or it might not. The Soviet strategy was mixed, CD, to take account of both possibilities, though the primary emphasis was on the expectation of negotiations, reflecting the dominance of the Khrushchev group.

A reactor is constituted by a failure to form a majority coalition, that is a failure to agree on bargaining strategy. The failure might be due to a wide divergence of goals or goal rankings or a strong disagreement in diagnosis and expectations, or both. In our examples of reactors, divergence of goals appeared in France, 1923 and Japan, 1940; disagreement on diagnosis and expectations appeared in Britain and France, 1938, and U. S. 1940; both divergence of goals and disagreement of expectations appeared in Germany, 1904-06 and NATO, 1962 Berlin. For example in France 1923 the Poincare-Millerand group wanted to continue the Ruhr occupation in order to break up Germany and establish a Rhenish state economically integrated with France; the rising Left coalition on which Poincare had depended to maintain his central position wanted to withdraw troops, cut military expenditures, and concentrate on internal economic problems. It may be that the failure to form a majority coalition in some of these cases was also due to the particular distribution of weights which prevented a central decision-maker from collecting a majority around him.

Compromising in reactors occurs only at the tactical level. There is no agreement on strategy; components of the reactor may favor strategies ranging from C to E (France 1923, Japan 1941) or more usually C to D, and therefore favor opposite tactics at every move. Whenever a tactical move is necessary a new compromise must be worked out, and all the disagreements within the reactor are reactivated. The compromise process begins with a message or action by the opponent, which activates one or more minority coalitions. One coalition (or more) proposes its preferred tactic which is promptly vetoed by some other coalition. It then attempts to buy off the blocking coalition by modifying its proposal. Sometimes the blocking coalition refuses to agree to anything, and no action can be taken. Sometimes, however, it reluctantly accepts a much weakened tactic, or proposes an amendment which will counteract what it regards as the most dangerous effects of the proposed

tactic. The amount of modification finally agreed on reflects the relative weights of coalition members plus the importance of a particular move for them. Each coalition has veto power, but if it uses that power too frequently it risks isolation and expulsion from the unit, so it reserves its objections for the most dangerous proposals.

Alternatively, a minority coalition may try to bypass the debilitating compromise process by secret messages (Konoye-Tojo sending a secret emissary to the U. S. Jan. 1941). A blocking coalition may reluctantly agree to a compromise tactic, then veto it during execution, either secretly (Henderson, supported by Chamberlain, failing to deliver British warnings to Hitler Sept. 1938) or openly (Adenauer rejecting the U. S. bargaining position May 1962).

The tactical compromises in a reactor occur through a process of mutual veto, since the weights of members are blocking weights, while the compromise producing a majority coalition occurs through a process of mutual acceptance and inclusion. In other words, tactical compromise is a minimax process, the search for the tactic that is least dangerous from all points of view, while strategic compromise tends to be integrative in Walton and McKersie's sense.[34] Consequently the tactics of a reactor are normally ineffective from all points of view within the reactor; their justification is not effectiveness but avoidance of disaster.

For example the several timid warnings sent to Germany by Britain and France in Aug.-Sept. 1938 were tactical compromises. They avoided provoking Hitler (Chamberlain's and Bonnet's veto) but also avoided appeasing him (Halifax-Cooper's and Mandel's veto) and in fact accomplished nothing. Hitler ignored them.

A more elaborate example is the disposition of the U. S. fleet in 1941. Britain several times requested that a portion of the U. S. fleet be stationed at Singapore to deter an expected Japanese move south. This was supported

by the U.S. hardline group based on a HL diagnosis that Japan was bluffing,
but vetoed by ML and SL members as it would provoke Japan. The Navy also
vetoed it on grounds of unpreparedness. Roosevent proposed that some of the
fleet be moved forward to the Philippines for patrol duty in the area; this
would continue preparing public opinion for the possibility of war, while a
move to Singapore would frighen people and provoked a negative public reaction.
This was vetoed by other ML-SL as it might provoke Japan and spread the Navy
too thin. Admiral Stark suggested that the fleet be moved back to San Diego
for training if war was coming; this was vetoed by HL as reducing our inade-
quate deterrent posture in the Pacific even more. The compromise was to
secretly reinforce the Philippine defenses; this would neither provoke Japan
(though in fact it did provoke Japan) nor reduce deterrence nor frighten
public opinion nor postpone war preparedness, but it accomplished nothing
positive either. Nor did it respond at all to the original British request.

Since tactical compromises are ineffective, and are expected to be
ineffective by all components of a reactor, they provide no opportunity to
test a strategy and correct deficiencies in it. The ineffectiveness of a
tactic can always be blamed on the debilitating compromises forced by an
opposing faction, and each faction can continue to believe that its strategy
would work if it could only be tried for a long enough time. For example
in the U. S. 1940-41 case both HL and SL expectations were quite mistaken,
but neither faction made any corrections. A move of the fleet to Singapore
might have corrected some HL delusions and a Konoye-Roosevelt meeting might
have corrected some SL delusions, but neither was permitted to occur.

The outputs of a reactor over time may have a certain consistency that
makes them resemble the actions of a slightly confused actor. However, there
is a sharp difference internally: the consistent strategy of an actor is
derived rationally from agreed diagnosis, expectations, and goals, while the
relatively consistent series of tactical compromises of a reactor expresses

consistent disagreement among blocking coalitions.[35] [37]

More typically the internal unfreedom of a reactor expresses itself
in behavior clearly different from that of an actor. When internal deadlock
is complete a reactor will not respond at all, or will respond only after a
long delay; for example France failed for two months to respond to the
German request for surrender terms in Sept. 1923. An actor, offered sur-
render by his opponent, would not delay like that. France failed to respond
because there was sharp disagreement within the government on what the ob-
jective of the Ruhr occupation was. If deadlock is less than complete and
there is a compromise, the opposing elements present in the compromise usually
make the tactic ineffective, as in the U. S. fleet example above, or self-
defeating. For example one major Japanese concession to the U. S. was to
pledge that Japan was not committed to support Germany in the event of a
U. S.-German war; but the Japanese SL were forced by HL to add a reaffir-
mation of loyalty in principle to the Axis, which made the concession worth-
less to the U. S.

Behavior over time will also typically be different. An actor's moves
will exhibit the consistency of an explicitly adopted strategy, or will
shift suddenly as a new strategy is adopted. A reactor's moves will exhibit
gradual drift or will vacillate as opposing groups gain temporary predom-
inance within the reactor.

Having distinguished actors and reactors, we must now add that an actor
can at any time turn into a reactor and vice versa, and some units can even
vacillate between the two. An actor (Type 4) becomes a reactor when a
minority coalition gains veto power; a reactor becomes an actor when a
majority coalition forms within it. In our cases Japan 1941 was in process
of becoming an actor and NATO 1958-62 changed from actor to reactor. France
late 1923 was a transition period between a majority coalition of the Right
and one of the Left, and Britain 1938 was a soft-line majority coalition in

which HL components intermittently managed a weak veto.

When a reactor becomes an actor, drift or inaction or vacillation are replaced by strategic consistency. For example France Dec. 1923 sharply reversed course and abandoned the whole Ruhr adventure, shifting to C; Japan Nov. 1941 abandoned its vacillation between appeasement and firmness and decided on war. When an actor becomes a reactor its behavior presumably begins to vacillate (Britain Oct. 1938) or drift aimlessly.

A non-bargaining model. Non-bargaining occurs when both bargaining units are reactors. We have one such case, U. S.-Japan 1940-41. We shall first examine this case empirically to locate the components of our model, and then state the model formally.

Both bargaining units in 1940-41 were continuously deadlocked. The deadlocks were between two forces, a "push" or accelerator and a "drag" or brake. The push was the stronger minority coalition which generally proposed actions, and the drag was the weaker minority coalition or coalitions which blocked and forced a compromise. In between were waverers who would sometimes push and sometimes drag or might shift definitively from one coalition to the other. In 1941 both "push" groups were pushing for increased coercive measures, with the drags wanting as little increase as possible. In 1938 both "push" groups, the Chamberlain Inner Cabinet in England and the Bonnet group in France, wanted greated accommodation, and the drags such as Cooper, Reynaud, Mandel, wanted to stop the increase of accommodation. In 1961 the NATO "push" coalition, namely ML and Macmillan SL, wanted increased accommodation, and the drags, Adenauer and DeGaulle HL, wanted as small an increase of accommodation as possible.

The Japanese lineup was as follows, reading from push to drag: 1) Foreign Minister Matsuoka representing the German ally and supported by extreme militarists outside the government. Matsuoka wanted military expansion to break the encirclement being imposed by Japan's many enemies.

2) The army, represented by Tojo. The army wanted especially to complete the conquest of China, and supported any strategy that would lead to that goal whether coercive or accommodative. Its inclinations were coercive. 3) The navy, represented by Oikawa. The navy in turn was a reactor with its own push and drag components. Oikawa himself favored a drag on coercive measures because of doubts about outcome of a U.S.-Japan war, but he could not insist too strongly because only part of the Navy supported his views. The Navy was less interested in China than in the oil and raw materials of the Indies. 4) Premier Konoye SL representing various SL SL elements such as Nomura (Navy) and Kido. Konoye strongly opposed coercive measures against the U. S. Public opinion largely supported the government, but there were also extreme groups that limited its freedom. On the push side were extreme militarists who continuously plotted and occasionally attempted to assassinate Konoye and Kido and who were represented by Matsuoka. On the drag side were pro-business and somewhat anti-militarist politicians, the "Shidehara politicians", who had lost power by 1936 but had some influence on public opinion.

The U. S. lineup from push to drag was as follows: 1) The HL deterrent officials, especially Hornbeck, Stimson, Morgenthau, Ickes, who believed that a firm strategy would deter the Japanese bluffer and eventually force him to back down. 2) Roosevelt, who was sensitive both to the British requests for more U.S. involvement and military aid and to the drag of anti-war public opinion and anti-war congressmen. 3) The military, represented by Adm. Stark and Gen. Marshall, who dragged on coercive measures because of military unpreparedness but who pushed domestically for military production and military preparedness. 4) Foreign Secretary Hull ML who worried about provoking Japan and who hoped that the Japanese SL might capitulate in negotiations. 6) Walker and Grew SL who saw Japan as a potential good neighbor or ally and who sympathized and wished to strengthen the Japanese SL.

Each move by both sides was a compromise between push and drag forces, and its degree of coerciveness expressed the balance of forces at that time. Now if we connect two such reactors so that the output of A is the input of B, we get a static or equilibrium system. Reactor A makes a move of a certain degree, a, of coerciveness; this activates B, which responds with a move of degree b. This activates A, which responds with a move of degree a, and so on.

The system is dynamic if move "a" shifts the balance of forces in B slightly so its output is $b+\triangle b$, and if $b+\triangle b$ shifts the balance of forces in A so its response is $a+\triangle a$, and so on. We can see exactly how this works in our cases. Move "a" strengthens the "push" component of B and/or weakens the "drag" component so that output is $b+\triangle b$. This increase of coercion strengthens A's push and/or weakens his drag, so A's output is $a+\triangle a$, and so on. The Japanese push is strengthened by a U.S. move which weakens Japan's war potential, say an oil or scrap iron embargo; this makes the military more desperate so they push harder for coercive measures to secure alternate sources of war materials. The U.S. push, the HL coalition, is strengthened by a Japanese military move. They interpret this as a Japanese bluff based on a weakened U.S. resolve reputation, and push harder for a firm stand which will improve U.S. reputation and thereby deter Japan from further aggression. Both Japanese and U.S. drags are weakened by a move of increased coerciveness; it falsifies their prediction that an accommodative attempt will be reciprocated, thereby weakening their prestige in the unit, and it also discourages them so they do not try as hard to resist the push component. For example, at Bad Godesberg 1938, when Chamberlain triumphantly told Hitler he was authorized to accept Hitler's terms, and when Hitler responded by increasing his demands, this so discouraged Chamberlain that he offered little resistance to the HL drag group in the Cabinet, which proposed to put a stop to British concessions.

The opposite kind of cycle could also occur: a-Δa triggers b-Δb which triggers a-2Δa, and so on. That is, a less coercive move encourages the SL negotiators: their expectations are being confirmed and their proposed accommodative strategy would work if it were accepted. A coercive response now would spoil everything, so they try very hard to block coercive proposals. For Japan a less coercive move also weakens the push. The U.S. is beginning to act reasonably; perhaps war can be avoided after all. The SL negotiators may be right, and should be given a chance to reach agreement. For U.S. a less coercive move does not weaken the HL push and may even strengthen it. Japan is starting to back down; the U.S. firm stand, even though weakened by foolish concessions to the SL, is working a little, and a firmer stand would work even better. Note that both accommodative and coercive moves strengthen the U. S. "push".

It is also possible to have a source of dynamism within a xxxxxx reactor which steadily shifts its balance of forces in one direction. An example is U.S. increase of war preparedness, which steadily reduces the U.S. military drag on coercive measures. That is, the more nearly the military are prepared for war, the less they resist coercive measures that might bring on a war suddenly.

So far we have sketched in outline a classic Richardson process. We have described a system composed of two reactors, in which the output of each reactor expresses its internal state and in which its internal state is changed by the output of the other reactor. This one is in fact the simplest of all such processes:

(1) $\quad \dfrac{\Delta X}{\Delta Y} = ky$

(2) $\quad \dfrac{\Delta Y}{\Delta X} = lx$

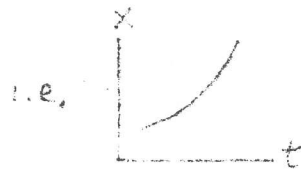The levels of coercion in this system increase at an exponential rate:

$$(3) \quad x = Ae^{+\sqrt{kl}\,t} + Be^{-\sqrt{kl}\,t}$$

$$(4) \quad y = \sqrt{\tfrac{k}{l}}\, Ae^{\sqrt{kl}\,t} - \sqrt{\tfrac{k}{l}}\, Be^{-\sqrt{kl}\,t}$$

When k=l this reduces to:

$$(5) \quad x = Ae^{kt} + Be^{-kt}$$

$$(6) \quad y = Ae^{kt} - Be^{-kt}$$

i.e,

where A is the initial level of coercion, B is the initial difference between x and y, and e is the natural logarithmic base. There is an unstable equilibrium at A = B = 0, that is, the output of each reactor leaves the other reactor unchanged. When A is negative the system moves to ever increased levels of accommodation. Richardson next put a negative feedback or brake into his system:

$$(7) \quad \frac{dx}{dt} = ky - \alpha x$$

but this is missing from our case, which makes our case more explosive than any of his.

The complication in our case is located in the reaction coefficients k, l, which in our case are curvilinear functions rather than constants.
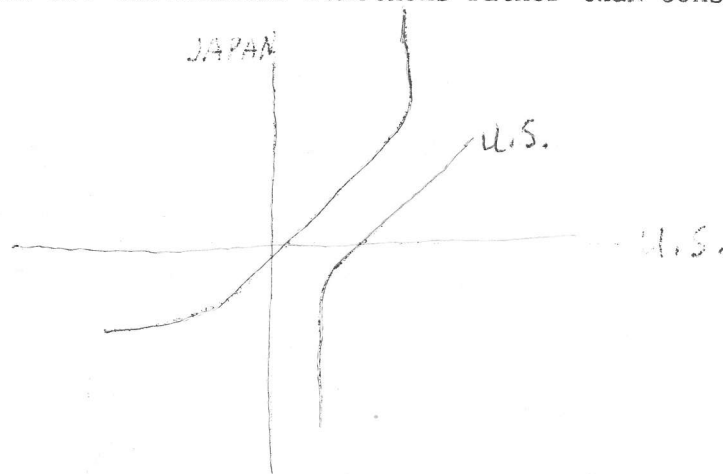

Fig. 5 - 1. Reaction coefficients, 1940-41.

For the U. S. there is a minimum level of coerciveness below which it will not move even if Japan surrenders, so the U. S. reaction function is practically vertical at the bottom. At the top, the U. S. matches Japanese

coercion increase step by step. For Japan, there is a maximum level of U.S. coercion beyond which Japan will go to war, so the Japanese reaction function is vertical at the top. Below this, it is willing to match a U.S. concession with its own concession, at a declining rate. There is a small area at low levels of coercion where the functions are linear and equivalent to 1 (45° slope), where the rate of coercion increase is slow. The 1940-41 system remained in this area until it broke out the top in Oct.- Nov. 1941. The possibility of detente is shown to be non-existent, and occurs only in the dreams of the drags on both sides, dreams in which the pushes and the opponent have suddenly become reasonable.

Note that Fig. 5 - 1 is a dynamic interpretation of a Deadlock game played by reactors, with the four quadrants representing DD, DC, CC, and CD respectively. A different game, say, Chicken, played between two reactors would presumably be characterized by quite different reaction functions. But since we have no examples one can only speculate on this.

But even Fig. 5 - 1 is a simplification. There is strong evidence to suggest that both countries reacted xx not only to the other's position but also to his change of position, a second order reaction. This was especially true for the U. S. Moreover, the U.S. second order reaction function had a sharp break in it, sharper than that in Fig. 1. The U.S. reacted to increased coercion with increased coercion, but it reacted to decreased coercion with no change. Increased coercion weakened the U.S. ML-SL drags by discouragement: Japan is not responding to our peace overtures. It strengthened the determination of the HL pushes: Japanese aggressiveness demonstrates the weakness of the U.S. deterrent posture, which must be strengthened. Decreased coercion confirmed both SL and HL predictions, which cancelled each other out. For the SL, Japan is getting more reasonable and negotiations have a better chance of success. For the HL, U.S. deterrence is starting to work and will work even better if it is increased.

In addition, both units reacted partly to their own past states, especially the U.S. We can distinguish three additional mechanisms here.

1) In the U.S. unit only there was a component of steadily decreasing drag independent of interaction. This was a) the military component, Stark and Marshall, who dragged proportionate to the state of military unpreparedness. As war production increased, military unpreparedness decreased, and in January 1942 this decreasing drag would have just barely shifted to push. Also b) public opinion, operating through Roosevelt, was steadily decreasing its opposition to war. This decrease was the effect of U.S. coercive acts, such as the occupation of Iceland, which conditioned people to accept more coercion. Roosevelt's policy was to stay slightly ahead of public opinion and thus gradually lead it to war, should war be necessary. This component by itself would counteract any possible movement toward detente.

In Japan only there was a component of increasing push after July, 1941. This was the consequence of the U.S. total embargo of July 26, which caused the Japanese military position to worsen daily. As a result the army pushed ever harder and the navy shifted from mixed to push.

In terms of Fig. 5 - 1 this component can be represented by a gradual shift of both reaction functions, upward for Japan and right for the U.S.

2) In Japan only it was possible to eliminate either a push or drag component by forming a temporary united front against it. One instance was Matsuoka's forced resignation July 16, 1941; a second was Konoye's resignation Oct. 16. The principle here seems to be that when one component gets too far from the center of gravity of the reactor it imposes an intolerable strain and is expelled.

3) Random factors can interfere with any of the other factors. The most prominent example was the Japanese misinterpretation of the U.S. note of April 9, 1941. This proposal was actually written by a Japanese army officer as a basis for discussion and was quite close to Konoye's 3L position,

but Japan thought it represented a U.S. offer. Thus the U.S. output as received was much less coercive than as sent. Richardson would not have liked that.[37] Another instance xx was the German attack on the S.U., combined with a request that Japan join the attack. This sudden push increase, by leading to the elimination of Matsuoka, actually decreased Japan's level of coercion.

Factors 2 and 3 can be treated as random factors relative to the rest, as they originate in different systems than the one under consideration.

We now combine all the above factors. Let A be Japan, B the U.S., RA and RB the two reactions. Then

$$(8) \quad RA_t = RA_{t-1} + f(RB_t - RB_{t-1}) - Q$$

$$(9) \quad RB_t = RB_{t-1} + k + g(RA_t - RA_{t-1})$$

where k is a constant > 0

f $\approx$ 1 till a coercion threshold is reached, above which it increases rapidly.

g is a step-function, ≈ 1 when the operand is positive, zero when the operand is negative.

Q is a random variable which is usually zero.

f and g are the two reaction functions, which operate on the change of position of the opponent. They are roughly equivalent to the two reaction functions in Quadrant 1 of Fig. 5 - 1. k represents the self-reacting increased push, and Q represents the occasional influence of other systems (Germany-S.U.) or of misperceptions.

Inspection of (8) and (9) shows that (9) will increase at a fairly steady rate. Increases in (8) can speed up its rate of increase but not slow it down. (8) will behave erratically. $f(RB_t - RB_{t-1})$ is always positive because RB is always increasing, but Q is sometimes negative. The effect will be an irregular increase of coerciveness. The combined system must increase its level of coerciveness indefinitely. Given the internal

composition of the two reactors as of July, 1940, war was inevitable.

We now illustrate the reactor system by describing the major moves from July 1940 to Nov. 1941. We begin arbitrarily with the U.S. embargo, which itself was a reaction to earlier moves and in no way a new start.

1. July 25, 1940. U.S. embargo. Push, HL. U.S. should prohibit export of oil and scrap iron to Japan. This will deter Japan from further aggression. Drag: State Dept. (Hull), Dutch, British. Embargo may provoke Japan into attack on Dutch East Indies.

Compromise: limit embargo to aviation fuel and top-grade scrap iron. The question of extending the embargo came up at intervals after that; gradual extension into 1941.

Effect on Japan: Army push increased, Navy drag reduced. War may be necessary eventually.

2. August. Japanese economic and military demands on Indo-China; increased demand for oil from Dutch East Indies. Push: Army. Japan must secure a supply of war materials in case of a complete U.S. embargo. Drag: Navy is neutral on demands, but opposed to war to enforce them. Navy needs oil, but some Navy men fear the move will provoke U.S. countermeasures.

Compromise: Demands are presented, but Dutch delays and low counter-offers are tolerated; demands are reduced ½. Compromise agreement reached Nov. 12.

3. Sept. 27, Japanese treaty with Germany. Push: Matsuoka. Treaty will deter U.S. Army: Treaty will neutralize S.U. and free more army for the China war. Drag: Navy, in part; Konoye, Kido. Treaty may provoke U.S.

Compromise: assurance to Navy that Japan is not automatically bound by the treaty; agreement to try not to provoke the U.S. in the future.

Effect on U.S. a) public opinion drag reduced. b) HL more anxious, propose tightening embargo. Drag: military, State Dept. No action taken.

4. Oct. 5, British want part of U.S. fleet moved to Singapore. Push: HL. This will deter Japan from its expected attack on Singapore. FDR: some sort of symbolic forward move needed, perhaps a naval patrol of Pacific waters, to keep public opinion moving forward. Drag: Hull. A move to Singapore might provoke Japan. Navy: it would also divide and weaken the Navy. Fleet should return from Hawaii to San Diego for training.

Compromise a) Quietly reinforce Philippines. Fleet stays at Hawaii. b) Secret U.S.-British military discussions to co-ordinate military defense of Malaya and Dutch East Indies. This issue came up again Nov. 25 and Feb. 10 with the same result.

Effect on Japan: Fear of encirclement; Matsuoka HL becomes more vigorous in urging military moves southward, including attack on Singapore. Drag: Navy. No action taken.

5. Dec. 10. Should U.S. license iron and other exports to Japan? HL: yes (effect of move 3). Hull: No, may provoke Japan.

Compromise: make licenses unobtrusive, gradually extend them to new categories. State Dept. resistance to licensing gradually disappears.

Effect on Japan: Army push increases. Jan. 1941 Japan reopens trade talks with Dutch East Indies with increased demands.

6. Dec. Konoye, with Army support, sends a secret negotiating proposal to U.S. via U.S. missionaries. This bypasses Matsuoka. Its general terms are reported to FDR in January. Details are worked out by U.S.-Japan private citizens, presented to Hull April 9. Hull forwards the proposal to Japan, asking whether it is acceptable to Japan as basis for negotiation.

Effect on Japan: proposal interpreted as a U.S. offer. Offer is reasonable. Konoye is correct, negotiations are promising. Konoye's influence on Army and Navy goes up; Matsuoka is isolated.

7. Japanese response to U.S. offer. Discussed April 21, sent May 7-12.

Push: Matsuoka, reject offer and attack Singapore as Hitler is requesting.
Drag: Army, Navy, Konoye. U.S. reasonableness should be tested in negotiations. Navy: unprepared to attack Singapore. Note: this is a majority coalition against Matsuoka. Tightened in discussions May 9.

Compromise: Offer is conditionally accepted, but two U.S. concessions are necessary. Loyalty in principle to Axis agreement is reaffirmed. Effect on U.S.: Hull despondent, shifts to neutral from drag.

8. U.S. reply. NL: April 9 draft calls for U.S. surrender, and May 12 version is still worse. Proposal is unacceptable. Drag: Grew SL. Konoye and others are trying to overcome the Matsuoka militarists and should be supported. FDR, U.S. needs time to build up the navy. Part of the Pacific fleet must be diverted to the Atlantic for convoy duty. Neutral: Hull. Note should be rejected but negotiations should be kept open in hopes of a Japanese shift.

Compromise: gently reject Japanese response.

Effect on Japan: SL group discouraged. U.S. is getting less reasonable.

9. Several moves which harden U.S. position and discourage Japan SL. Dutch reject Japanese trade demands; negotiations broken off. June 6, 20, U.S. partial oil embargo. June 21, firmer U.S. rejection of Japan's proposals. Increased U.S. aid to China.

10. June 22, Germany invades SU., invites Japan to attack Siberia. Push: Matsuoka, a great opportunity. Drag: Army. Japan's army is still inferior to Siberian army, was defeated by it in 1938-39. China is the main Japanese problem. Konoye, attack would unite S.U., U.S., Britain against Japan. Navy, necessary oil is in the Indies, not Siberia.

Decision July 2: Japan must move south.

Effect on Japan: Matsuoka isolated, eliminated from power. New lineup: strong push, Army. Neutral, Navy. Weak drag, Konoye group.

11. July 14, Japan demands air and naval bases in south Indo-China.
This expresses the July 2 decision to move south.

Effect on U.S.: FDR, Hull, shift to push. New lineup: push, HL, FDR,
Hull. Weak drag: Navy, Grew.

12. July 26, U.S. freezes Japanese assets in U.S. Push: HL, FDR, Hull.
Japan has decided to attack the Indies and must be stopped. Drag: Navy.
Not ready for war yet. Do not provoke Japan.

Compromise: though assets are frozen, Japan can still apply for export
licenses, which in practice will not be acted on. FDR assures Japan that no
embargo has been imposed.

Effect on Japan: FDR's deception is not believed. War is almost in-
evitable. Navy shifts to push; U.S. oil embargo means disaster in 1½ to 2 years.

13. Japanese proposal, sent Aug. 5, Sept. 6, Sept. 22, Sept. 25. Push:
Army. Japan must prepare for war. Navy: Japan must act quickly, whatever
it decides to do. Drag: Konoye. Japan should make one more try for peace.

Compromise: Konoye given one more chance, with deadline of early Oct.
Meanwhile, war preparations.

Effect on U.S.: HL strengthened. Japan is backing down. Firmness now
will preserve peace. SL discouraged. Situation is hopeless.

14. U.S. rejection, Oct. 2. Push: HL. Japan will now back down; pro-
posal should be rejected. FDR, Hull, war is inevitable but U.S. is not quite
ready. Neutral: Navy. Navy is almost ready for war now. Drag: Grew.
Last chance for peace; try to continue negotiations somehow.

Compromise: U.S. stalls, then rejects Japan's proposal without breaking
off negotiations.

Effect on Japan: Konoye gives up, resigns.

15. Oct. 31. Japan decides for war. Push: Army, part of navy. Though
war is a desperate gamble, situation is deteriorating daily and the alter-
native to war is national ruin. Drag: Part of navy. Japan will probably

lose this war, but the Navy will do its duty and fight.

Decision: Emperor commands Tojo to neglect no chance for peace. And since Japan will not be in a position to attack until early December, U.S. will be given one more chance to accept Japan's terms. On Dec. 1, Japan will decide on war. Revised offer sent to U.S. Nov. 7.

Effect on U.S.: negotiations are hopeless, to be continued only "for the record". Offer rejected.

Note that the Japanese reactor became an actor in October with Konoye's resignation. There was now no effective drag left, so the unit had internal freedom. However, the external system so limited Japan that the only free choice Japan could make was to commit suicide.