

Delay, Drift, and the Correction a Path Permits

A Generative Relational Account of Propagation Through Intermediaries

Wanhong Huang

huangwanhong@serendip.ngo

Abstract

Two parties that cannot address one another directly may be reached through others, and the practice is old. What passes along such a path is composed afresh at every relay, so what arrives is not what was sent, and the path also takes time, so what arrives is late. This paper treats the two together. A longer path buys an interval and spends fidelity, and both follow from the same relays, so the interval and the departure cannot be varied independently. Two claims are then advanced. Where nothing corrects the departure, a longer path is worse without qualification, which agrees with what is known of lagged feedback in models of confrontation. Where a correction process operates during the interval, the two effects oppose one another, and the departure surviving at the far end is greatest at an intermediate path length, given here as one divided by twice the product of the correction rate and the latency of a hop. Short paths carry little departure; long paths give correction time to work; the exposed region lies between them. The account then observes that a path carrying an overture carries a threat on the same terms, and that a threat arriving in a departed form is read as evidence of intent, which makes the symmetry worse than a caution. Existing statements that interdependence buys time for negotiation are conceded, and the present account supplies the condition they leave unstated. Nothing here is measured, no empirical claim is made, and the model is offered as a construction whose behaviour is reported.

Keywords: propagation; intermediaries; delay; escalation; generative relational theory

Draft. This is a working draft. It is circulated for comment, and its arguments, formulations, and open questions are subject to revision. Correction and criticism are welcome at huangwanhong@serendip.ngo.

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Use of generative artificial intelligence. Generative AI assistants (Anthropic’s Claude and OpenAI’s ChatGPT) were used extensively in preparing this manuscript: for literature survey, for drafting prose from the author’s specifications, for adversarial review of the argument, for the model and code underlying the figures, for consistency and citation auditing, and for typesetting. Formulations and objections arose in the course of those exchanges as well as from the author. Every claim, argument, and citation was reviewed and decided by the author, who is responsible for the content and for any errors. Bibliographic details are to be verified against published sources before reliance.

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A note on the standing of this paper

This paper makes no empirical claim. It contains no measurement, tests nothing against any record, and reports no quantity drawn from any case. What it contains is a construction with three constants that I chose, together with the behaviour that construction exhibits. Where a number appears it is a property of the construction, and Section 9 says so at the point where the numbers are given.

The literature this paper enters is large and I have surveyed a part of it. Two existing statements come close to the claim I began with, that a longer path buys time in which correction can occur, and both are conceded at Section 4: one locates the delay in the difficulty of attribution and the other in institutional procedure. What I found on checking further is that the mathematical literature on confrontation with a lag runs the other way, since in a lagged feedback loop a longer delay ordinarily destabilises. That finding changed the paper. What survives is narrower than what I set out with, and I think it is better: the received accounts are right under a condition they do not state, and this paper states it.

Three things may be wrong. The composition performed at a relay may not accumulate as the model has it, in which case the shape of Section 6 changes and the interior maximum may not exist. The correction process is represented by a single rate, which is a considerable simplification of anything a party would actually do. And the reading of the model onto diplomacy is a reading, offered as one, and a reader who declines it keeps the model and loses the paper's subject.

Corrections and objections are welcome at the address on the title page.

1 INTRODUCTION

This paper concerns what happens to a structure that reaches its destination through intermediaries. Its objective is to state the two effects a longer path has, to show that they oppose one another only under a condition, to identify that condition, and to record that the same path carries hostility on the same terms. The method is to state a construction, to report its behaviour, and to say at each point what the construction is being asked to carry.

The practice is old and is not in dispute. Where two parties cannot address one another, a third may carry what passes between them, and diplomacy has always used mediators, third states, unofficial contacts and multilateral settings for exactly that. What the practice supplies is reach where none was available.

Two consequences of using a path have been treated separately and are treated together here.

The first is that a relay does not transmit. A party receiving a structure construes it under its own procedures and composes what it sends onward, so what leaves a relay is that relay's composition. A companion paper establishes this and draws the immediate consequence, that reach obtained through intermediaries is purchased at the cost of fidelity, with the party whose only route is longest having its claim composed by others most often (Huang, 2026b). Along a path of several relays the departures accumulate.

The second is that a path takes time. Each hop has a latency, and a structure arriving by a path of several relays arrives later than one arriving directly. That delay has been treated as a resource. In the literature on stability in the cyber domain the difficulty of attribution is discussed as placing a pause on response times and so interrupting an escalatory sequence, the extension of time giving the parties room to step back (Healey and Jervis, 2020). The literature on the commercial peace carries a related observation, that institutions delay responses to conflict and thereby allow parties to negotiate.

The paper takes the two together, and the first thing that follows is that they cannot be varied independently. The interval and the departure are both produced by the relays, so a party that lengthens a path to gain time has spent fidelity to buy it, and a party that shortens a path to preserve fidelity has given up the time. That is the trade of Section 6, and it is stated as a trade because the account selects no point on it.

The second thing that follows is a correction to the accounts that treat the delay as a resource. Consider a path along which nothing corrects the departure. The structure arrives later and in a more departed form, and there is no respect in which the lengthening has helped. This is not a novel observation and it agrees with what is understood of confrontation modelled with a lag, where a longer delay between one side's act and the other's response is ordinarily treated as a source of instability in place of a source of stability; the base model is Richardson's and the extension introducing the lag is not (Richardson, 1960). Section 7 states it.

The condition under which the received accounts hold is therefore that something operates on the departure during the interval. Where a correction process does operate, the two effects oppose one another: the departure grows with the number of relays and the time available for correcting it grows with the same number. Section 8 reports what the construction gives, which is that the departure surviving at the far end is greatest at an intermediate path length, at one divided by twice the product of the correction rate and the latency of a hop. Short paths carry little departure because there have been few relays. Long paths deliver little because correction has had time to work. The exposed region lies between them, and it is bounded on both sides.

Two consequences are drawn from that shape and neither is obvious in advance. A party facing a blocked channel and choosing among indirect routes is not choosing between a safe short path and a dangerous long one, and may make matters worse by lengthening a path that was already short. And the region of exposure narrows as the correction rate rises, so a party that improves its capacity to correct changes not only how much departure survives but which paths are dangerous.

The account then observes what the same structure implies for hostility. A path that carries an overture carries a threat on identical terms, and a threat arriving in a departed form is worse than an overture arriving in one, since a party receiving a distorted threat reads the distortion as evidence about intent. Section 10 treats this, together with the delegation of force through third parties, and it is the reason the account supplies no recommendation that paths be lengthened.

Three limits are declared at the outset, and the first governs the others. The paper makes no empirical claim. It measures nothing, tests nothing against any record, and reports no quantity drawn from any case; the numbers in Section 9 are properties of a construction with constants the author chose. The composition performed at a relay is represented by an accumulation whose form is stipulated, and Section 13 records what a different form would change. And the reading of the construction onto diplomatic practice is a reading, so a reader who declines it retains the construction and loses the subject.

The exposition proceeds as follows. Section 2 fixes the scope. Section 3 surveys the received mechanisms of the commercial peace and Section 4 the existing statements about delay. Section 5 states what a path does to a structure and Section 6 the trade between the interval and the fidelity. Sections 7 and 8 treat the two cases, Section 9 reports the construction's behaviour, and Section 10 treats the same path carrying hostility. Sections 11 through 14 state the correspondence with the companion papers, the constraint form of the account, its boundaries, and the questions it opens.

The paper belongs to a series applying generative relational theory to governance, and it is the fifth of a set on diplomacy.

2 SCOPE AND THE STANDING OF THE CONSTRUCTION

This section fixes what the paper undertakes. Its objective is to state the object, to record what is carried from the companion papers, to state what the construction is and is not, and to note the bounds observed.

2.1 *The Object of the Account*

The object is a structure travelling from one party to another through intermediaries, together with two properties of the route: the departure that accumulates as each relay composes what it received, and the interval the route consumes. The object is a property of a route and not of any party, and the level is that of the construction.

Three things lie outside. The paper offers no procedure for choosing a route, and Section 12 states why. It offers no measurement of any quantity it names, and Section 13 states what a measurement would require. And it takes no position on whether any actual arrangement exhibits the structure described.

2.2 *The Results Carried from the Companion Papers*

Three results are used and not re-derived. That what crosses between parties carries structure and no content, and that the receiving party composes its own determination from its own state, belongs to the companion treatment of knowledge among differently situated parties (Huang, 2026a). That reach obtained through intermediaries is purchased at the cost of fidelity, with no step on the route performed badly, belongs to the companion anatomy (Huang, 2026b). And that the strength of a coupling governs the rate at which a relation moves in place of the range over which it moves belongs to the companion treatment of coupled systems (Huang, 2026c).

2.3 *The Standing of the Construction*

The construction of Section 5 has three constants: the scale of the departure a single relay introduces, the latency of a hop, and the rate at which a correction process acts. All three were chosen by the author. The construction was written to see whether the two effects described in the prose can be made to oppose one another, and they can.

What the construction does not do should be stated in the same place. It measures nothing. No constant in it was estimated from any record, no output of it was compared with any case, and the shapes of its curves are properties of the constants. A reader who substitutes other constants obtains other shapes, and the results reported below are the ones that survive that substitution, which is why they are stated as relations among the constants in place of as numbers.

2.4 *The Political Bounds Observed*

The material this paper reads is drawn from settings that remain live, and three bounds are observed. No state is named and no episode is characterised. The account is stated for routes in general, so nothing in it bears on any actual relation without an argument the paper does not supply. And the observation of Section 10, that the structure described carries hostility as readily as it carries an overture, is stated as a property of routes and not as a description of anyone's conduct.

3 THE RECEIVED MECHANISMS AND THE RESIDUE

This section surveys the mechanisms already proposed for the pacifying effect of interdependence, together with the findings that dissent from it. Its objective is to record what each mechanism claims, to concede the network account that runs the other way, and to state the residue.

3.1 *Cost*

The oldest mechanism holds that interdependence raises the cost of conflict, so that parties with much to lose are less willing to fight. The proposition has been tested repeatedly and the affirmative finding is associated above all with the work of Oneal and Russett (Oneal and Russett, 1999).

3.2 *Signalling and the Capitalist Peace*

A second mechanism holds that integration allows a party to demonstrate resolve at a cost short of violence, so that disputes may be settled by signals in place of by escalation, and that the effect belongs to capital and to financial openness in place of to trade alone (Gartzke, 2007; Gartzke et al., 2001).

3.3 *Expectations About Future Trade*

A third mechanism is temporal and is distinct from the account offered here. On the theory of trade expectations, what governs is what leaders expect of the future trade environment: positive expectations favour peace, and expectations of losing access favour initiating a crisis while the position still permits it (Copeland, 2015). The mechanism concerns beliefs about a future and not the time a message takes to arrive.

3.4 *The Dissenting Findings*

The pacifying finding is contested. Measured by salience, interdependence has been found to accompany conflict in place of preventing it (Barbieri, 1996), and the operationalisation of interdependence itself has been shown to bear heavily on what is found (Gartzke and Li, 2003).

3.5 *Coercion Through the Structure of the Network*

A fourth body of work runs against any reading of connection as pacific, and it is conceded here at length because it is the nearest account to this paper's own object. States holding authority over the central positions of global economic networks can use those positions to coerce, so that the structure of connection is itself an instrument (Farrell and Newman, 2019).

The present paper takes that as established and observes that it concerns a different property of the network. That account concerns position, and what follows from occupying a hub. This account concerns path, and what follows from the number of relays between an origin and a destination. A network may be read for either, and neither reading answers the other.

3.6 *The Residue*

Claim 3.1. (The residue). *The received mechanisms locate the effect of interdependence in the cost of conflict, in the credibility of signals, in expectations about a future, in domestic composition, or in the coercive value of a position. None of them concerns what a route does to a structure passing along it, and none treats the interval a route consumes together with the departure it introduces.*

4 THE DELAY ALREADY CLAIMED AND THE CONDITION IT LEAVES UNSTATED

This section records the existing statements that treat an interval as pacific. Its objective is to state each accurately, to identify what they share, and to name the condition on which they depend and which none of them states.

4.1 *The Pause That Attribution Imposes*

In the literature on stability in the cyber domain, the difficulty of establishing who acted is discussed as placing a pause on response times and so interrupting an escalatory sequence, on the reasoning that a crisis is constituted in part by temporal pressure and that an extension of time gives the parties room to step back (Healey and Jervis, 2020). The delay there is produced by an epistemic difficulty and is treated as a benefit of it. The formulation above is the present

author's summary of a position discussed in that literature and is not offered as the wording of any party to it.

4.2 *The Delay That Institutions Impose*

The literature on the commercial peace carries a related observation. Liberal institutions are said to delay responses to conflict, and thereby to allow parties to negotiate and to avoid further violence. The delay there is produced by procedure.

4.3 *The Condition Both Accounts Presuppose*

The two locate the delay differently and agree on what it accomplishes. In each the added interval is treated as a resource, and in neither is anything said about what must happen during it.

Claim 4.1. (The unstated condition). *An interval is a resource only where something operates within it. Where nothing corrects the misconstrual that occasioned the exchange, the interval supplies delay and nothing else, and Section 7 states what follows. The accounts above are therefore correct under a condition they do not name.*

The condition is not an objection to either account and is a restriction on their scope. A party may reasonably suppose that the pause attribution imposes will be used, since the parties to a crisis are ordinarily doing something. What the present paper asks is what follows when they are not, and how much of the benefit remains when the correction is slow against the delay.

5 THE PATH AND WHAT IT DOES TO A STRUCTURE

This section states the construction. Its objective is to define a path and a relay, to say how the departure accumulates, to say what the path costs in time, and to record what each of these stipulations is doing.

5.1 *The Relay and the Composition It Performs*

A relay receives a structure and sends one onward. What it sends is composed by its own procedures from the structure it received and from the state it already occupies, so it is the relay's composition and not the structure it received. That is established in the companion papers and is taken as settled here (Huang, 2026a,b).

Definition 5.1. (A path). *A path of length n from one party to another is a sequence of n relays, each receiving what the previous one composed. The structure arriving at the destination is the composition of the last relay.*

5.2 The Departure and the Form of Its Accumulation

Each relay's composition departs from what it received. Writing σ for the scale of the departure a single relay introduces, and taking successive departures to be independent of one another, the departure at the end of a path of n relays has expected magnitude

$$\sigma\sqrt{n}. \tag{1}$$

The stipulation in Equation (1) is that departures accumulate as independent increments, so that they grow with the square root of the number of relays and not in proportion to it. What that represents is a relay whose composition is as likely to move the structure back toward what was sent as away from it. Two alternatives are available and neither is adopted here. If relays share a common bias the departure grows in proportion to n ; if a relay tends to restore what a previous relay altered the growth is slower. Section 13 records what each alternative changes.

5.3 The Interval the Path Consumes

Each hop has a latency, written τ , so a structure arriving by a path of n relays arrives after an interval

$$n\tau \tag{2}$$

that a direct exchange would not have consumed.

The two equations are the whole of the construction's account of a path, and the next section states what follows from their having the same n in them.

6 THE TRADE BETWEEN THE INTERVAL AND THE FIDELITY

This section states the consequence of the two properties of a path being produced by the same relays. Its objective is to state the trade, to say what it forecloses, and to record that the account selects no point on it.

6.1 The Two Effects of One Choice

A party choosing a longer path has chosen both effects at once. By Equation (1) the departure grows with the number of relays, and by Equation (2) the interval grows with the same num-

ber. There is no route that lengthens the interval and leaves the departure where it was, since the relays that produce the one produce the other.

Claim 6.1. (The trade). *Along a path, the interval available for correction and the fidelity of what arrives are bought against one another. A party that lengthens a path to gain time has spent fidelity to buy it, and a party that shortens a path to preserve fidelity has given up the time.*

6.2 The Recommendation the Trade Forecloses

Claim 6.1 forecloses a recommendation that is otherwise available and that the accounts of Section 4 come close to supporting. It is not open to a party to secure the benefit of an interval by routing a matter more indirectly, since what arrives at the end of the longer route is a more departed structure, and the correction the interval permits is correction of a larger departure.

Whether the exchange is favourable is therefore not settled by the trade itself and depends on the rate at which correction acts. Sections 7 and 8 treat the two cases.

6.3 The Point on the Trade That the Account Does Not Select

The account states the trade and selects no point on it, and the reason is given at Section 12. What a party should prefer depends on what it is trying to preserve, and the account holds no quantity in which the interval and the fidelity could be compared.

7 A PATH ALONG WHICH NOTHING CORRECTS

This section treats the case in which the interval is not used. Its objective is to state what the construction gives, to record that the result is not novel, and to say what it settles about the accounts of Section 4.

7.1 The Residual Where the Correction Rate Is Zero

Proposition 7.1. (Monotonicity). *Where no correction acts, the departure arriving at the destination is $\sigma\sqrt{n}$ and is increasing in the number of relays. A longer path delivers a more departed structure later, and there is no respect in which the lengthening has helped.*

The proposition follows from Equation (1) and requires no computation. Values from the construction, at $\sigma = 1$: the departure is 1.000 at one relay, 2.236 at five, 3.162 at ten, 4.472 at twenty, and 6.245 at thirty-nine.

7.2 *The Agreement with What Is Known of Lagged Confrontation*

The result is not novel and should not be presented as though it were. The mathematical treatment of confrontation between two parties begins with Richardson, whose equations carry no lag (Richardson, 1960). Later work in that tradition has introduced the interval between one side's act and the other's response as a variable, and in that literature a longer lag is ordinarily treated as a source of instability. The extension is not Richardson's and is not attributed to him here; the sources for it were not examined at first hand and the statement should be read as a report of what that literature is understood to hold. A responder acting on information that is old acts on a state the other party has left, and the correction it applies is applied late and is therefore too large.

What the present construction adds at this point is only that the lateness comes with a departure, so that the responder is acting late and on an altered structure.

7.3 *The Bearing on the Received Accounts*

Proposition 7.1 settles that an interval is not a resource in itself. The accounts of Section 4 are therefore not statements about intervals and are statements about intervals in which something happens, which is Claim 4.1 established from the construction in place of asserted.

8 A PATH ALONG WHICH CORRECTION ACTS

This section treats the case in which the interval is used. Its objective is to represent the correction, to state where the residual departure is greatest, to state the region within which a path is exposed, and to record what the result forecloses.

8.1 *The Correction and Its Rate*

Let a correction process act on the departure throughout the interval, at a rate ρ , so that a departure present for a time t is reduced by a factor $e^{-\rho t}$. Applying this over the interval of Equation (2) gives the departure surviving at the destination,

$$r(n) = \sigma \sqrt{n} e^{-\rho \tau n}. \quad (3)$$

The representation is a stipulation and a strong one. A single rate stands for whatever a party does to establish what was meant, and Section 13 records what it leaves out.

8.2 Where the Residual Is Greatest

Proposition 8.1. (The interior maximum). *The residual of Equation (3) rises and then falls, and it is greatest at*

$$n^* = \frac{1}{2\rho\tau}. \quad (4)$$

Short paths deliver little departure because few relays have composed; long paths deliver little because the correction has acted for longer. The greatest residual lies between them.

The stationary point follows from differentiating Equation (3), and it was checked against the construction. At $\tau = 1$ the predicted positions are ten relays at $\rho = 0.05$, five at $\rho = 0.10$ and two and a half at $\rho = 0.20$; the computed positions were ten, five and three. At $\rho = 0.05$ with $\tau = 2$ both give five.

8.3 The Region Within Which a Path Is Exposed

Claim 8.2. (The exposed region is bounded on both sides). *Taking a magnitude of surviving departure beyond which an arrangement is exposed, the path lengths that exceed it form an interval bounded above and below. A path may therefore be too long and may also be too short, and lengthening a short path may move it into the exposed region.*

Values from the construction, at $\sigma = 1$, $\rho = 0.05$ and $\tau = 1$: the paths exceeding a magnitude of 0.8 run from one relay to forty-one; those exceeding 1.2 from two to thirty; those exceeding 1.5 from four to twenty-three; those exceeding 1.8 from six to fifteen; and those exceeding 1.9 from nine to twelve.

8.4 The Consequences for a Party Choosing a Route

Two consequences are recorded and neither is available before Proposition 8.1.

A party choosing among indirect routes is not choosing between a safe short path and a dangerous long one. The two ends of the range are the safe ones, and a party that lengthens a route already short has moved toward the exposed region in place of away from it.

And by Equation (4) the position of the greatest residual moves toward shorter paths as the correction rate rises, while Claim 8.2's region narrows. A party that improves its own capacity to establish what was meant therefore changes which routes are dangerous and not only how much departure survives, so a route judged safe under one correction rate is not thereby safe under another.

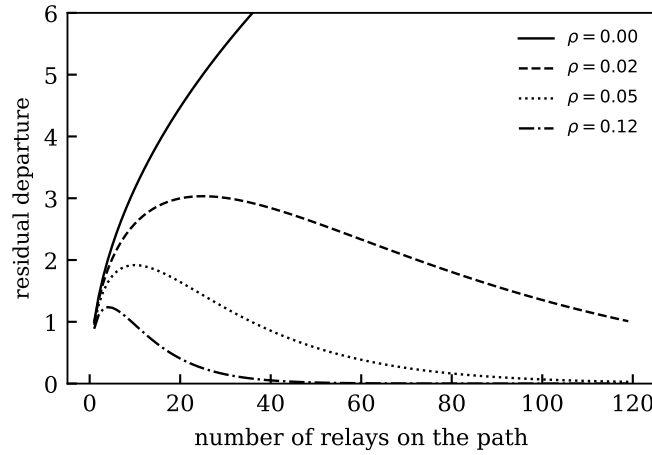


Figure 1: The departure surviving at the destination, plotted against the number of relays on the path, at four correction rates, with $\sigma = 1$ and $\tau = 1$. The figure displays the behaviour of the construction and reports nothing about any arrangement.

9 THE CONSTRUCTION'S BEHAVIOUR

This section displays what the construction does. Its objective is to show the two shapes the preceding sections state, and to record what the display is and is not.

9.1 *The Residual Against the Length of the Path*

Figure 1 plots Equation (3) against the number of relays, at four correction rates. At a rate of zero the curve rises without turning, which is Proposition 7.1. At the three positive rates the curve rises and falls, which is Proposition 8.1, and the turn moves toward shorter paths as the rate rises.

9.2 *The Position of the Greatest Residual*

Figure 2 plots Equation (4) against the correction rate. The curve is a hyperbola and it carries no information beyond the equation, and it is shown because the relation between a party's capacity to correct and the length of route that exposes it is the paper's least intuitive statement.

9.3 *The Standing of the Two Figures*

Neither figure measures anything. The three constants were chosen by the author, no value in either was estimated from any record, and the vertical scale of the first has no unit because the departure of a composed structure from what was sent is a quantity the paper has not defined operationally.

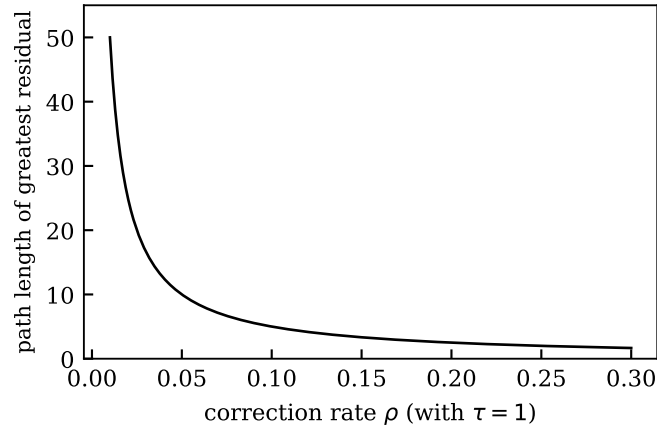


Figure 2: The path length at which the surviving departure is greatest, plotted against the correction rate, with $\tau = 1$. The figure displays Equation (4) and reports nothing about any arrangement.

What the figures show is that the two shapes the argument requires are exhibited by the construction. What they do not show is that anything exhibits them, and Section 13 states what would be required before that question could be asked.

10 THE SAME PATH CARRYING HOSTILITY

This section records what the construction implies for what a party would rather not send well. Its objective is to state the symmetry, to say why it is worse for a threat than for an overture, to note the delegation of force through third parties, and to identify the one term that is not symmetric.

10.1 *The Indifference of the Construction*

Nothing in Section 5 concerns what the structure is. A relay composes what it received, the departure accumulates, and the interval is consumed, whatever the structure was sent to accomplish. A path that carries an overture carries a threat on identical terms, and every result of Sections 6 through 8 holds of both.

10.2 *The Asymmetry in What a Departed Structure Costs*

The symmetry of the construction does not make the two cases alike in what they cost, and the difference runs against the threat.

An overture arriving in a departed form is received as an overture that did not land, and the receiving party is left where it was. A threat arriving in a departed form is received as a threat, and its content is a claim about what the sending party intends. A departure in such

a structure is therefore a departure in the receiving party's estimate of an intention, and the receiving party has no way of telling a departure introduced by the relays from a disposition of the sender. It will ordinarily attribute what arrived to the sender, since that is what a threat is for.

Claim 10.1. (The distortion of a threat is read as intent). *A structure whose content is a claim about the sender's intention carries its departures into the receiving party's estimate of that intention. Where the receiving party cannot separate what the relays composed from what the sender meant, a departure introduced along the route is attributed to the sender.*

Claim 10.1 is the reason the account offers no recommendation that routes be lengthened. A party lengthening the routes by which it makes overtures has lengthened the routes by which it is understood to threaten, and it does not hold the two apart.

10.3 The Delegation of Force Through Third Parties

Force delegated through a third party travels the topology the preceding sections describe. What follows from the construction is only that such an arrangement inherits the properties of a route: the acts arrive late, they arrive composed by the parties that carried them, and by Claim 10.1 the composition is attributed to whoever is taken to have sent them.

The account reaches no conclusion about any such arrangement and makes no recommendation concerning any. What it supplies is the observation that the capacity relied on by a party reaching a blocked counterpart indirectly is the same capacity, and that a description of the first that omits the second has described a route by the use it approves of.

10.4 The One Term That Is Not Symmetric

Two of the construction's three constants are properties of the route and are shared: the number of relays and the latency of a hop. The third is not.

Claim 10.2. (The correction rate is the available term). *The correction rate belongs to the parties and not to the route, and raising it lowers the surviving departure whatever the structure was sent to accomplish. A party improving its own capacity to establish what was meant improves the arrival of overtures and of threats alike, which is a change it may make without also having improved a route it would rather not improve.*

Claim 10.2 identifies where the account leaves room for action and where it does not. Lengthening or shortening a route is ambiguous in its effects by Claim 8.2 and symmetric between overtures and threats by Section 10.1. Raising the rate at which a party establishes what was meant is neither.

11 THE CORRESPONDENCE WITH THE COMPANION PAPERS

This section states how the objects of this paper stand to those of the four companion papers on diplomacy. Its objective is to identify the counterparts and to say what this paper adds to each.

11.1 *The Relay and the Site of Construal*

The companion treatment of knowledge among differently situated parties represents the passage of a claim as a material event carrying no content together with an operation the receiving party performs on its own state (Huang, 2026a). A relay in Section 5 is that operation performed twice, once in receiving and once in composing what is sent onward, and the departure of Equation (1) is the divergence that treatment establishes, accumulated along a sequence.

11.2 *The Cost of Reach, Put in Time*

The companion anatomy holds that reach obtained through intermediaries is purchased at the cost of fidelity, that a claim arriving by a path of length n has been composed by others n times, and that no step on the route need be performed badly for this to hold (Huang, 2026b).

This paper is that claim put in time. What the anatomy states of fidelity, it states without reference to the interval the route consumes; what this paper adds is that the interval grows with the same n , that the two are therefore bought against one another, and that where a correction acts they oppose one another with the consequence of Proposition 8.1.

11.3 *The Rate and the Range*

The companion treatment of coupled systems holds that the strength of a coupling governs the rate at which what two parties hold in common moves and not the range over which it moves (Huang, 2026c). The present paper concerns a different quantity and reaches a formally similar result: the length of a route governs both the interval and the departure, and the question in each case is which of two properties a parameter controls.

11.4 *The Deposit and What a Route Delivers*

The companion treatment of the gift holds that what a received structure leaves behind is the determination the receiving party made of it, laid down in the context against which it construes what arrives next (Huang, 2026d). Along a route, every relay leaves such a deposit, and what the destination receives has passed through as many of them as there are relays. The present paper does not develop that and records it as a question at Section 14.

12 THE CONSTRAINT FORM OF THE ACCOUNT

This section states the form in which the account's normative content is held. Its objective is to fix the relation between the construction and any reason for action, to give the ground on which no route is preferred to another, and to record the sentence the account must remain able to refuse.

12.1 *The Wall Between a Construction and a Recommendation*

The account describes what a route does. That a departure grows with the number of relays, that an interval grows with the same number, and that a surviving departure is greatest at a stated length are statements about a construction. None of them is offered as a reason for choosing a route or for the treatment of any party.

The separation requires attention here because the construction has an obvious reading as advice. A quantity called a surviving departure sounds like something to be minimised, and nothing in the construction supports that. Where a normative statement appears in this paper it is imported, and it is attributed at the point of use.

12.2 *The Grounds for Preferring No Route*

Three grounds tell against an ordering of routes by the quantities of this paper.

The trade of Claim 6.1 is between an interval and a fidelity, and the account holds no quantity in which the two could be compared, so a route that buys more of one and less of the other is not thereby better or worse.

By Claim 8.2 the exposed region is bounded on both sides, so a direction of improvement is unavailable: a route may be improved by lengthening or by shortening depending on where it stands, and the account supplies no way of establishing where any actual route stands.

And by Section 10.1 the construction is indifferent to what a route carries, so an ordering of routes would order them for overtures and for threats at once.

12.3 *The Sentence the Account Must Remain Able to Refuse*

A test of the account is whether it can refuse the following sentence: that where a party's claims are likely to be composed by others in transit, they should be routed through fewer relays even where doing so leaves the party unable to reach its counterpart at all.

The account refuses it, and three features secure the refusal. Reach is what the route was for, and a route that does not arrive has no fidelity to preserve. The comparison the sentence requires, between a departure suffered and a counterpart unreached, is one the account holds no quantity to make. And by Claim 8.2 the shorter route is not the safer one in general, so the sentence rests on a monotonicity the construction denies.

The sentence is refusable because nothing in the account values a smaller departure, a shorter route, or a longer interval. A reader who finds the account recommending any of these has found an importation, and it is not the paper's.

13 THE BOUNDARIES OF THE UNDERTAKING

This section states the boundaries within which the account holds. Each is given as a property of the undertaking together with what would have to be established for it to be moved.

13.1 *The Absence of Any Empirical Content*

The paper measures nothing. No constant in the construction was estimated from any record, no output of it was compared with any case, and no claim is made that any arrangement exhibits what the construction exhibits.

Moving this boundary requires an operational definition of the departure of a composed structure from what was sent, which the paper does not supply and which Section 9.3 records as the reason its figures carry no unit. It would also require a way of counting relays in an actual route and of estimating the rate at which parties establish what was meant, and the paper offers neither.

13.2 *The Form in Which Departures Accumulate*

Equation (1) takes successive departures to be independent, so that they grow with the square root of the number of relays. The stipulation carries the interior maximum of Proposition 8.1 and a reader should know what it excludes.

Where relays share a bias the departure grows in proportion to the number of relays, and the residual is $\sigma n e^{-\rho \tau n}$, whose maximum lies at $1/(\rho \tau)$, twice as far along. Where a relay tends to restore what a previous relay altered the growth is slower and the maximum lies nearer the origin. The qualitative result survives both, and its position does not, so nothing in the paper turns on the number n^* beyond its being finite.

13.3 *The Representation of Correction by a Single Rate*

A party establishing what was meant does many things, over unequal intervals, with results that depend on what it is trying to establish. The construction represents all of it by one exponential rate.

What that leaves out is at least the following: correction that acts only at the destination in place of throughout the route, correction whose own messages travel the same route and are themselves composed, and correction that is available for some structures and not for others.

Each would change the shape of Equation (3), and the second would make the model self-referential in a way the present one is not.

13.4 *The Restriction to One Route*

The construction treats a single path. A party ordinarily has several available at once and may use them together, and what follows from combining routes of different lengths is not treated here.

13.5 *The Reading, Which Remains a Reading*

The identification of the construction's terms with anything in diplomatic practice is a proposal. A relay is not defined here by anything a practitioner would recognise, the latency of a hop is not the time any particular exchange takes, and the correction rate names a capacity the paper has not characterised. A reader who declines the identification keeps the construction and loses the paper's subject.

14 QUESTIONS OPENED BY THE ACCOUNT

This account identifies a structure the existing treatments of interdependence and of delay leave undescribed: the interval a route supplies and the departure it introduces are produced by the same relays, so they cannot be varied apart, and where a correction acts the two oppose one another with a maximum between them. If that structure is real, the following questions arise, and the account answers none of them.

Q1. Section 13.1 records that the paper supplies no operational definition of the departure of a composed structure from what was sent. What would such a definition look like, and could it be applied to any record that exists?

Q2. Proposition 8.1 places the greatest surviving departure at $1/(2\rho\tau)$. Are there arrangements in which the number of relays and the rate of correction can both be estimated well enough for the position to be located, and would practitioners recognise the resulting region?

Q3. Claim 4.1 holds that an interval is a resource only where something operates within it. In the cases where the received accounts observe an interval doing pacific work, what was it that operated, and at what rate against the delay?

Q4. Section 13.2 records that a shared bias among relays moves the maximum to $1/(\rho\tau)$. Which form of accumulation holds where a route runs through parties that share an interest in how a structure is composed?

Q5. Section 13.3 notes that a correction whose own messages travel the same route would make the construction self-referential. What does the account become when correction is itself subject to the departure it corrects?

Q6. Claim 10.2 holds that the correction rate is the term available to a party, since the route is shared. Is that so in practice, and are there parties able to alter a route without altering it for what they receive?

Q7. Section 11.4 observes that every relay leaves a deposit in its own context, so a structure travelling a route passes through as many as there are relays. What accumulates in the relays themselves over a sustained practice of carrying, and does it bear on what they compose?

Q8. Section 13.4 restricts the account to one route. What follows from using several routes of unequal length at once, and does the exposed region of Claim 8.2 have a counterpart for a set of routes?

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