Stop Making People Agree

A Category-Theoretic and Game-Theoretic Theory of Consensus Without Conformity

With an Application to Red/Blue Climate Politics

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Abstract

Consensus is often confused with conformity. A population is said to agree when it has collapsed into a dominant vocabulary, dominant policy regime, dominant interpretation, or dominant social norm. This paper separates these notions. Using the finite multiset monad M, the Kleisli category $\mathbf{Kl}(\mathsf{M})$, and the slice category $1/\mathbf{Kl}(\mathsf{M})$, we distinguish chamber-internal consensus from boundary consensus. Chamber-internal consensus is modeled by local Eilenberg–Moore-style collapse inside a dominance chamber. It produces conformity when strategic agents independently optimize under the same local collapse. Boundary consensus, by contrast, is a Kleisli/interface construction. It maps non-dominant boundary regions to shared interface objects that remain legible to multiple neighboring chambers without collapsing into any one of them. Game-theoretically, boundary consensus is a Nash-stable interface: no party benefits from unilateral deviation, but no party is forced to adopt the other party's full chamber identity. The application to climate politics is immediate. Durable red/blue agreement over global warming should not be sought as conversion into one side's metaphysical chamber. It should be sought as shared infrastructure, shared risk reduction, and shared institutional protocols that both sides can read in their own terms. This is consensus without conformity.

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1 The Problem: Consensus Has Been Captured by Conformity

Modern public life often mistakes consensus for sameness. A group is said to have reached consensus when it uses the same language, endorses the same moral hierarchy, accepts the same institutional authorities, and stabilizes the same dominant interpretation. This is a narrow conception. It confuses agreement with assimilation.

The central claim of this paper is that consensus need not be conformity. There are at least two structurally different kinds of consensus:

dominance consensus and boundary consensus.

Dominance consensus is agreement by collapse. Boundary consensus is agreement by interface construction.

The distinction matters because many of the most important social and political agreements do not require one side to become the other. A treaty does not require one civilization to become the other civilization. Trade does not require one market culture to become the other market culture. Translation does not require one language to abolish the other language. Diplomacy does not require one country to adopt the other country's full moral vocabulary. These are not failures of consensus. They are examples of a better kind of consensus: consensus without conformity.

The mathematical claim is that this distinction is visible in the geometry generated by the finite multiset monad. A dominance chamber is a region in which a multiset admits a unique local collapse. A non-dominance zone is a region in which no single collapse has legitimate global authority. In such a region, one should not expect a single Eilenberg–Moore algebra to provide consensus. Instead, one should construct an interface object in the Kleisli/slice setting.

2 Multisets, Kleisli States, and Dominance Chambers

Let M denote the finite multiset monad on **Set**. For a set X, $\mathsf{M}(X)$ is the set of finite formal sums

$$m = \sum_{x \in X} n_x \left|\mathrm{x}\right\rangle ,$$

where $n_x \in \mathbb{N}$ and all but finitely many n_x are zero. The unit

$$\eta_X : X \to \mathsf{M}(X)$$

sends x to the singleton multiset $|\mathrm{x}\rangle$, and the multiplication

$$\mu_X : \mathsf{MM}(X) \to \mathsf{M}(X)$$

flattens a multiset of multisets.

The Kleisli category $\mathbf{Kl}(\mathsf{M})$ has sets as objects and morphisms

$$f : X \to \mathsf{M}(Y).$$

The slice category $1/\mathbf{Kl}(\mathsf{M})$ is especially useful. An object of $1/\mathbf{Kl}(\mathsf{M})$ is a Kleisli arrow

$$m : 1 \to X,$$

which is equivalently a multiset $m \in \mathsf{M}(X)$. Thus the objects of $1/\mathbf{Kl}(\mathsf{M})$ may be read as multiset states: populations, practices, votes, resources, cultural configurations, institutional mixtures, or political issue-bundles.

2.1 Majority Collapse

Define the admissible domain $D_X \subseteq \mathsf{M}(X)$ by

$$D_X = \{m \in \mathsf{M}(X) : \text{there is a unique element } x \in X \text{ with maximal multiplicity}\}.$$

The majority or dominance collapse is the partial map

$$\alpha_X : D_X \rightharpoonup X$$

that returns the uniquely dominant generator.

For example,

$$\alpha(10\,|\mathrm{A}\rangle + 2\,|\mathrm{B}\rangle) = A.$$

The map is partial because ties and sufficiently balanced mixtures are not assigned a unique dominant value.

Definition 2.1 (Dominance chamber). *For $A \in X$, the A-dominance chamber is*

$$U_A = \{m \in \mathsf{M}(X) : n_A > n_x \textit{ for all } x \neq A\}.$$

On U_A, the local collapse map is

$$\alpha_A : U_A \to X, \qquad \alpha_A(m) = A.$$

Definition 2.2 (Singular hypersurface). *For two possible dominant generators $A, B \in X$, the singular hypersurface between them is the locus*

$$\Sigma_{AB} = \{m \in \mathsf{M}(X) : n_A = n_B \geq n_x \textit{ for relevant competing } x\}.$$

It is a region of failed or suspended dominance.

The motivating observation is that the majority collapse does not define a global Eilenberg–Moore algebra. A genuine Eilenberg–Moore algebra for the multiset monad would be a map

$$\alpha : \mathsf{M}(X) \to X$$

satisfying

$$\alpha \circ \eta_X = \mathrm{id}_X$$

and

$$\alpha \circ \mathsf{M}(\alpha) = \alpha \circ \mu_X.$$

The second law says that aggregating local aggregates and then aggregating again should agree with flattening first and aggregating once. This is a stringent compositionality condition. Majority voting generally fails it. Grouping can change the result.

3 Consensus as Eilenberg–Moore Collapse

The first, familiar notion of consensus is collapse-stable aggregation.

Definition 3.1 (Eilenberg–Moore consensus). *An Eilenberg–Moore consensus structure on X is an Eilenberg–Moore algebra*

$$\alpha : \mathsf{M}(X) \to X.$$

For $m \in \mathsf{M}(X)$, the value $\alpha(m)$ is the consensus value of m.

The Eilenberg–Moore law has a direct social interpretation:

$$\alpha(\mathsf{M}(\alpha)(\mathfrak{m})) = \alpha(\mu(\mathfrak{m})).$$

If subgroups first form local consensuses and the whole group then aggregates those local consensuses, the result must agree with forming consensus from the full ungrouped population.

This is a powerful ideal. It is also too strong for many social and political settings. It treats consensus as a single output in X. If X is the vocabulary of one chamber, then consensus becomes collapse into that chamber.

Inside U_A, consensus has the form

$$m \in U_A \implies \alpha_A(m) = A.$$

This is local consensus, but it is also the mathematical root of conformity. Everyone who wants to remain coherent inside the chamber must respond to the same local stabilizing interpretation.

4 Conformity as Chamber-Internal Nash Stabilization

We now add game theory. Let two players or institutional networks have move sets

$$P_A, \qquad P_B,$$

and an outcome assignment

$$\Omega : P_A \times P_B \to \mathsf{M}(X).$$

Let each player have an evaluation map

$$u_A : \mathsf{M}(X) \to V_A, \qquad u_B : \mathsf{M}(X) \to V_B,$$

where V_A and V_B are ordered value sets.

A strategy profile (p_A, p_B) is a Nash equilibrium when, for all unilateral deviations $p'_A \in P_A$ and $p'_B \in P_B$,

$$u_A(\Omega(p_A, p_B)) \geq u_A(\Omega(p'_A, p_B)),$$

and

$$u_B(\Omega(p_A, p_B)) \geq u_B(\Omega(p_A, p'_B)).$$

Definition 4.1 (Chamber-internal game)**.** *A game is chamber-internal at U_C when all relevant outcomes lie in U_C and each player's evaluation factors through the local collapse:*

$$u_i = \bar{u}_i \circ \alpha_C$$

for some $\bar{u}_i : X \to V_i$.

In such a game, the players may be formally distinct, but they are not negotiating a boundary object. They are optimizing within the same chamber. The apparent two-player game degenerates into parallel adaptation to a shared dominance regime.

Proposition 4.1 (Conformity principle)**.** *If a game is chamber-internal at U_C, then any Nash equilibrium of the game is not an interface equilibrium. It is a conformity equilibrium: a stable point of local dominance.*

Proof. All relevant outcomes lie in U_C. Therefore each outcome admits the same local collapse $\alpha_C(m) = C$. Since each evaluation factors through α_C, all strategic comparisons are made after applying the same chamber stabilization. No outcome remains jointly legible as a boundary object between two distinct chambers. Hence a Nash equilibrium, if it exists, is a chamber-internal stable point rather than a stabilization of non-dominance. □

This explains a familiar phenomenon. A formal Nash equilibrium need not represent real interaction. If both players have only one move, equilibrium is vacuous. If both players evaluate the dominant chamber as best, equilibrium is conformity. If the outcome decomposes as

$$\Omega(p_A, p_B) = \Omega_A(p_A) + \Omega_B(p_B)$$

and the payoffs similarly decompose, then the apparent game is a product of two one-player optimization problems. It is a two-player table with no real interface.

Thus:

$$\boxed{\text{Conformity is Nash equilibrium after the interface has collapsed.}}$$

5 Non-Dominance Zones

A non-dominance zone is a region where no chamber possesses unilateral stabilizing authority.

Definition 5.1 (Boundary region)**.** *Let U_A and U_B be neighboring dominance chambers. A boundary region B_{AB} is a thickened neighborhood of the singular hypersurface Σ_{AB}:*

$$\Sigma_{AB} \subseteq B_{AB} \subseteq \mathsf{M}(X).$$

Objects $s \in B_{AB}$ are boundary objects.

A boundary object is not simply an error, a tie, or a failure. It is a state that remains live for more than one chamber. It can be read from N_A and from N_B without being exhausted by either.

The essential move is to stop trying to define consensus as a map

$$B_{AB} \to X.$$

That would force the boundary to choose a chamber. Instead, consensus at the boundary should land in an interface vocabulary.

6 Boundary Consensus

Let Y_{AB} be an interface vocabulary: a set of terms, protocols, practices, infrastructures, instruments, or rules that can be used by both chambers without belonging exclusively to either.

Examples include:

$$\{exttreatyterm, \text{exchange rate}, \text{translation rule}, \text{border protocol}, \text{shared standard}\}.$$

Definition 6.1 (Boundary consensus map)**.** *A boundary consensus map is a function*

$$\beta : B_{AB} \to \mathsf{M}(Y_{AB}).$$

For $s \in B_{AB}$, the multiset $\beta(s)$ is the interface consensus associated with the boundary object s.

This is not an Eilenberg–Moore collapse. It does not return A or B. It returns an interface object.

Because $\mathsf{M}(Y_{AB}) \cong \mathbf{Kl}(\mathsf{M})(1, Y_{AB})$, the value $\beta(s)$ is itself an object of $1/\mathbf{Kl}(\mathsf{M})$. Boundary consensus is therefore a map from a region of multiset states to interface states in the Kleisli/slice picture.

6.1 Legibility Maps

For boundary consensus to be useful, the interface object must be legible to both chambers. This is represented by Kleisli interpretation maps

$$\lambda_A : Y_{AB} \to \mathsf{M}(X_A), \qquad \lambda_B : Y_{AB} \to \mathsf{M}(X_B).$$

Extending Kleisli-linearly, an interface consensus

$$q = \beta(s) \in \mathsf{M}(Y_{AB})$$

receives chamber-relative interpretations

$$\lambda_A(q) \in \mathsf{M}(X_A), \qquad \lambda_B(q) \in \mathsf{M}(X_B).$$

Neither interpretation exhausts the object q. The consensus object remains in the interface.

Definition 6.2 (Consensus without conformity)**.** *A boundary consensus $q = \beta(s)$ is a consensus without conformity when it satisfies:*

(i) ***Non-collapse:*** *q is not equivalent to a singleton dominant generator from either chamber.*

(ii) ***Joint legibility:*** *there exist interpretation maps λ_A and λ_B making q usable by both chambers.*

(iii) ***Identity preservation:*** *the chamber-relative interpretations do not force $N_A = N_B$.*

(iv) ***Strategic stability:*** *no party has an incentive to destroy the interface by unilateral deviation.*

The slogan is:

$$\boxed{\text{Consensus without conformity is consensus in the interface, not consensus in a chamber.}}$$

7 Boundary Games and Interface Nash Equilibria

We now define the game-theoretic version.

Definition 7.1 (Boundary game)**.** *A two-network boundary game consists of:*

(i) two coherent networks N_A and N_B;

(ii) a boundary region $B_{AB} \subseteq \mathsf{M}(X)$;

(iii) move sets P_A and P_B;

(iv) an outcome assignment $\Omega : P_A \times P_B \to B_{AB} \cup U_A \cup U_B$;

(v) evaluation maps u_A, u_B.

A profile may produce a boundary object or it may destroy the boundary by pushing the outcome into one chamber. Boundary consensus tries to select or construct an interface object that survives strategic pressure.

Definition 7.2 (Interface Nash equilibrium)**.** *A strategy profile (p_A, p_B) is an interface Nash equilibrium when:*

(i) $s = \Omega(p_A, p_B)$ *lies in the boundary region* B_{AB}*;*

(ii) $q = \beta(s)$ *is a consensus without conformity;*

(iii) neither player improves by unilateral deviation:

$$u_A(\Omega(p_A, p_B)) \geq u_A(\Omega(p'_A, p_B)) \quad \forall p'_A \in P_A,$$

$$u_B(\Omega(p_A, p_B)) \geq u_B(\Omega(p_A, p'_B)) \quad \forall p'_B \in P_B.$$

Thus:

$$\boxed{\text{Interface Nash equilibrium} = \text{stable non-dominance under unilateral deviation.}}$$

Proposition 7.1 (Boundary consensus can exist without EM consensus)**.** *There may be no Eilenberg–Moore consensus value in* X *for a boundary object* $s \in B_{AB}$*, while a boundary consensus* $\beta(s) \in \mathsf{M}(Y_{AB})$ *exists.*

Proof. Take $X = \{A, B\}$ and

$$s = 5\,|\mathrm{A}\rangle + 5\,|\mathrm{B}\rangle\,.$$

The majority collapse is undefined on s, since A and B tie. Hence there is no majority-consensus value in X. But let $Y_{AB} = \{r\}$ contain an interface rule and define

$$\beta(s) = |\mathrm{r}\rangle\,.$$

Then a boundary consensus exists even though no dominance consensus exists. The consensus is not a selected winner in X; it is an interface object in $\mathsf{M}(Y_{AB})$. □

8 The Bread–Noodle Treaty

Let two neighboring civilizations have different coherent networks. Civilization A is organized around bread and coin C_A:

$$m_A = 10\,|\mathrm{Bread}\rangle + 2\,|\mathrm{C\_A}\rangle\,.$$

Civilization B is organized around noodles and coin C_B:

$$m_B = 10\,|\mathrm{Noodle}\rangle + 2\,|\mathrm{C\_B}\rangle\,.$$

A border market is represented by

$$s = 5\,|\mathrm{Bread}\rangle + 5\,|\mathrm{Noodle}\rangle + 5\,|\mathrm{C\_A}\rangle + 5\,|\mathrm{C\_B}\rangle\,.$$

This is a non-dominant object. A dominance consensus would choose one side's vocabulary:

$$\alpha_A(s) = Bread \qquad \text{or} \qquad \alpha_B(s) = Noodle.$$

That is collapse, not treaty.

Let the interface vocabulary be

$$Y_{AB} = \{\text{exchange rate}, \text{border market rule}, \text{coin conversion rule}\}.$$

Define

$$\beta(s) = |\text{exchange rate}\rangle + |\text{border market rule}\rangle + |\text{coin conversion rule}\rangle\,.$$

This is consensus without conformity. Civilization A still eats bread and uses C_A. Civilization B still eats noodles and uses C_B. But both can act through the shared interface object.

Now let

$$P_A = P_B = \{Trade, Dominate\}.$$

Mutual trade preserves the interface. Unilateral domination attempts to collapse the boundary. Mutual domination destroys the market. A representative payoff table is:

	$Trade_B$	$Dominate_B$
$Trade_A$	$(3, 3)$	$(1, 4)$
$Dominate_A$	$(4, 1)$	$(0, 0)$

In the one-shot game, $(Dominate, Dominate)$ may be the Nash equilibrium even though it destroys the value of the interface. Diplomacy, reputation, repeated interaction, law, and treaty enforcement modify the game so that unilateral domination becomes less attractive. With such modifications, $(Trade, Trade)$ can become an interface Nash equilibrium.

This gives a precise interpretation:

a treaty is a Nash-stabilized boundary consensus object.

9 Climate Politics as a Boundary Problem

We now apply the theory to climate politics in the United States. The goal is not to reduce the physical science to political vocabulary. The physical science is not a matter of red/blue preference. The Intergovernmental Panel on Climate Change states that human activities, principally greenhouse gas emissions, have unequivocally caused global warming, with global surface temperature reaching about 1.1°C above 1850–1900 levels in 2011–2020 [7]. NOAA ranked 2025 as the third-warmest year in its global temperature record dating to 1850 [8].

The political problem is different. The issue bundle called "global warming" is not received as a single object in American public life. It is a multiset of scientific facts, fuel prices, jobs, regulation, status, local risk, media identity, trust, distrust, disasters, insurance, farming, manufacturing, and national sovereignty.

Pew Research Center has repeatedly documented sharp partisan divisions on climate and energy issues, while also finding areas where the divide is smaller, such as nuclear power and some concrete adaptation measures [9, 10]. Yale's Climate Opinion Maps estimate that a large majority of Americans think global warming is happening, while also showing substantial geographic and political variation in beliefs, risk perception, and policy support [11].

This is exactly the formal situation in which consensus by conformity fails.

10 The Red and Blue Dominance Chambers

Let X include the following generators:

$$\begin{aligned} X = \{&\text{climate science}, \text{emissions reduction}, \text{regulation}, \text{global responsibility}, \\ &\text{cheap power}, \text{jobs}, \text{local control}, \text{energy security}, \\ &\text{flood risk}, \text{fire risk}, \text{farm resilience}, \text{insurance stability}, \\ &\text{domestic manufacturing}, \text{permitting}, \text{nuclear}, \text{grid reliability}\}. \end{aligned}$$

Define two stylized political chambers:

$$U_{Blue} = \{\text{states where climate science, emissions, and regulation dominate}\},$$

$$U_{Red} = \{\text{states where energy cost, local control, jobs, and sovereignty dominate}\}.$$

These are not moral descriptions of actual people. They are idealized chamber descriptions. The point is to model the interpretive collapse, not to stereotype voters.

A blue dominance consensus says:

$$\alpha_{Blue}(m) = \text{climate emergency}.$$

A red dominance consensus says:

$$\alpha_{Red}(m) = \text{energy coercion or elite overreach}.$$

Each chamber can produce a coherent local interpretation. But neither interpretation can serve as a durable national consensus if it requires the other side to conform to the chamber's entire vocabulary.

11 The Climate Boundary Object

The relevant boundary object is not the slogan "believe in climate change." It is a mixed practical object:

$$\begin{aligned} s =& 5\,|\text{cheap power}\rangle + 5\,|\text{grid reliability}\rangle + 5\,|\text{flood risk}\rangle + 5\,|\text{fire risk}\rangle \\ &+ 5\,|\text{insurance stability}\rangle + 5\,|\text{farm resilience}\rangle + 5\,|\text{domestic manufacturing}\rangle \\ &+ 5\,|\text{energy security}\rangle + 5\,|\text{emissions reduction}\rangle\,. \end{aligned}$$

This object does not collapse cleanly into either chamber. Blue can read it as climate mitigation and adaptation. Red can read it as reliability, property protection, energy abundance, farm protection, and domestic industry.

Therefore s belongs in the boundary region

$$B_{Red,Blue} \subseteq \mathsf{M}(X).$$

The goal is not to force

$$\alpha_{Blue}(s) = Blue$$

or

$$\alpha_{Red}(s) = Red.$$

The goal is to construct

$$\beta(s) \in \mathsf{M}(Y_{Red,Blue}).$$

12 The Interface Vocabulary for Climate Consensus

Let $Y_{Red,Blue}$ be an interface vocabulary:

$$\begin{aligned} Y_{Red,Blue} = \{&\text{grid hardening}, \text{cheap firm power}, \text{nuclear deployment}, \\ &\text{geothermal deployment}, \text{methane leak repair}, \text{flood defense}, \\ &\text{wildfire resilience}, \text{farm adaptation}, \text{insurance stabilization}, \\ &\text{domestic energy manufacturing}, \text{permitting reform}, \text{local disaster resilience}\}. \end{aligned}$$

A possible boundary consensus map yields:

$$\begin{aligned}\beta(s) = &2\,|\text{grid hardening}\rangle + 2\,|\text{cheap firm power}\rangle + |\text{nuclear deployment}\rangle\\ &+ |\text{methane leak repair}\rangle + |\text{flood defense}\rangle + |\text{farm adaptation}\rangle\\ &+ |\text{insurance stabilization}\rangle + |\text{domestic energy manufacturing}\rangle + |\text{permitting reform}\rangle\,.\end{aligned}$$

This is not a blue object. It is not a red object. It is an interface object.

The chamber-relative interpretation maps are:

$$\lambda_{Blue} : Y_{Red,Blue} \to \mathsf{M}(X_{Blue}),$$

$$\lambda_{Red} : Y_{Red,Blue} \to \mathsf{M}(X_{Red}).$$

For example:

$$\lambda_{Blue}(\text{grid hardening}) = |\text{climate adaptation}\rangle + |\text{electrification readiness}\rangle\,,$$

while

$$\lambda_{Red}(\text{grid hardening}) = |\text{reliability}\rangle + |\text{local resilience}\rangle + |\text{energy security}\rangle\,.$$

Likewise:

$$\lambda_{Blue}(\text{methane leak repair}) = |\text{greenhouse gas reduction}\rangle\,,$$

while

$$\lambda_{Red}(\text{methane leak repair}) = |\text{waste reduction}\rangle + |\text{operational efficiency}\rangle\,.$$

And:

$$\lambda_{Blue}(\text{nuclear deployment}) = |\text{low carbon firm power}\rangle\,,$$

while

$$\lambda_{Red}(\text{nuclear deployment}) = |\text{domestic energy abundance}\rangle + |\text{grid reliability}\rangle\,.$$

The same interface object supports different but compatible readings. That is the mechanism of consensus without conformity.

13 A Climate Boundary Game

Let each side have two simplified moves:

$$P_R = P_B = \{Interface, Dominate\}.$$

Here $Interface$ means support the boundary consensus object, and $Dominate$ means demand that climate policy collapse into one's own chamber vocabulary.

The outcome map is:

$$\Omega(Interface, Interface) = q \in \mathsf{M}(Y_{Red,Blue}),$$

where $q = \beta(s)$ is the shared interface package.

If blue dominates while red offers interface, the issue is framed as moral and regulatory conversion:

$$\Omega(Interface_R, Dominate_B) \in U_{Blue}.$$

If red dominates while blue offers interface, the issue is framed as anti-regulatory backlash:

$$\Omega(Dominate_R, Interface_B) \in U_{Red}.$$

If both dominate, the issue polarizes:

$$\Omega(Dominate_R, Dominate_B) \in U_{Red} \cup U_{Blue}$$

with no stable shared object.

A stylized payoff table is:

	$Interface_B$	$Dominate_B$
$Interface_R$	$(3,3)$	$(1,4)$
$Dominate_R$	$(4,1)$	$(0,0)$

In the one-shot version, domination may be tempting. Each side gets symbolic advantage if it can force the other to accept its chamber while the other remains cooperative. But mutual domination produces paralysis.

Institutional design should alter this game so that unilateral domination becomes expensive and interface construction becomes stable. Mechanisms include:

(i) local control over implementation;

(ii) explicit protection of energy affordability;

(iii) measurable emissions and resilience goals;

(iv) permitting reform tied to clean firm power and grid expansion;

(v) disaster insurance and building resilience standards;

(vi) domestic manufacturing commitments;

(vii) bipartisan oversight and transparent accounting.

These mechanisms do not require shared identity. They stabilize a shared boundary object.

14 What Consensus Without Conformity Predicts

The theory predicts that the most durable climate policies are those that remain legible in both chambers. They should have the form:

one interface object, two chamber readings.

Interface object	**Blue reading**	**Red reading**
Grid hardening	Climate adaptation; electrification readiness	Reliability; security; keeping the lights on
Nuclear power	Low-carbon firm power	Domestic energy abundance; industrial strength
Geothermal	Clean firm power	Local energy production; drilling jobs and expertise
Methane leak repair	Greenhouse gas reduction	Waste reduction; operational efficiency

Flood defense	Climate adaptation	Property protection; lower disaster exposure
Wildfire resilience	Adaptation to warming-driven risk	Forest management; protecting homes and towns
Farm adaptation	Climate resilience	Protecting farmers and rural livelihoods
Insurance stabilization	Managing climate risk	Keeping property markets viable
Domestic clean manufacturing	Decarbonization supply chain	Jobs; industrial sovereignty; competition with China
Permitting reform	Build transmission and clean energy faster	Cut bureaucracy; build again

These are not merely compromises. They are boundary objects. They allow coordinated action without forced symbolic conversion.

15 Why This Is Not Climate Denial and Not Climate Moralism

Consensus without conformity does not mean pretending the science is undecided. The physical claim that human activities have caused global warming is supported by the IPCC's assessment language [7]. It also does not mean treating red and blue vocabularies as equally accurate descriptions of the physical climate system.

The point is different. The physical world and the political interface are not the same object. A scientific assessment may be true, while the politics of acting on that assessment still requires an interface object. If one side experiences every policy as a demand for identity collapse, it will resist even when some practical measures would benefit its own chamber. Conversely, if the other side treats every practical interface object as morally insufficient because it lacks full symbolic conversion, it may destroy the very consensus needed to act.

The boundary theory says:

$$\boxed{\text{Do not demand shared identity where shared action is enough.}}$$

16 Main Theorem of the Paper

The central theorem is conceptual but precise.

Theorem 16.1 (Consensus without conformity)**.** *Let U_A and U_B be neighboring dominance chambers in $\mathsf{M}(X)$ with boundary region B_{AB}. Suppose there exists an interface vocabulary Y_{AB}, a boundary consensus map*

$$\beta : B_{AB} \to \mathsf{M}(Y_{AB}),$$

Kleisli interpretation maps

$$\lambda_A : Y_{AB} \to \mathsf{M}(X_A), \qquad \lambda_B : Y_{AB} \to \mathsf{M}(X_B),$$

and a boundary game whose outcome $s = \Omega(p_A, p_B)$ lies in B_{AB}. If $q = \beta(s)$ is non-collapsing, jointly legible, identity-preserving, and Nash-stable under unilateral deviation, then q is a consensus without conformity.

Proof. By non-collapse, q is not a selected dominant generator of either chamber. By joint legibility, both chambers can interpret q through λ_A and λ_B. By identity preservation, those interpretations do not identify the two chambers or require either chamber to adopt the other chamber's full stabilization. By Nash stability, neither party improves by unilaterally destroying or exiting the interface. Hence q coordinates the parties while preserving chamber distinction. That is consensus without conformity. $\square$

17 Conclusion: The Boundary Saves Consensus

The ordinary picture says that consensus means agreement on one dominant interpretation. The category-theoretic picture says this is only one kind of consensus. It is EM-style collapse, and inside a dominance chamber it becomes the mathematical root of conformity.

But many of the most important human agreements do not look like collapse. They look like interfaces: treaties, markets, translations, protocols, standards, ports, border towns, scientific collaborations, diplomatic missions, and shared infrastructure. These are not inferior substitutes for consensus. They are often the only form of consensus appropriate to a plural world.

Game theory then clarifies the stability condition. A boundary consensus must not only be jointly legible; it must be stable under unilateral deviation. The interface must not be so fragile that either side can profit by collapsing it into dominance.

Applied to climate politics, this suggests a practical doctrine:

$$\boxed{\text{Build climate consensus as shared infrastructure, not shared identity.}}$$

Global warming requires action. But action need not require cultural conversion. The strongest climate settlement may be one in which blue sees adaptation, mitigation, and decarbonization, while red sees reliability, affordability, sovereignty, and local resilience. If the same interface object supports both readings and remains stable under strategic pressure, then the society has achieved consensus without conformity.

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