Participatory Proportion — Readers Respond (Facebook/Meta)

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Abstract

Online civic discussion often derails through tonal imbalance: people escalate more than they intend. We evaluate Buoyancy Algebra (BA) with Torque Dynamics (TD) on a Facebook "Readers Respond" corpus. BA defines proportionality $\Pi = H/(1+P)$ and repairs language with a fixed operator pass $\Omega = F \circ C \circ R$. TD models stability through torque and friction ($\tau = \kappa I \theta$, $\sigma = E N W$). On n = 33 segmented claims, a single Ω pass reduces rhetorical pressure by $\Delta\Pi = 0.083$ ($t(32) = 20.45$, $p = 3.057 \times 10^{-20}$, dz = 3.56). Results generalize ethical repair to participatory discourse and clarify strategy trade-offs under TD.

Processing pipeline → Text → Segment → Measure Π → Repair Ω → Re-measure Π → ΔΠ + Statistics.

Table 1. Article-level statistics

n	mean ΔΠ	median ΔΠ	t(df)	p	dz	95% CI	Π_before	Π_after	Rel. dr
33	0.083	0.081	t(32)=20.45	3.057×10^{-20}	3.56	[0.075 0.091]	0.495	0.412	16.8%

Note. 95% CI computed by t-distribution; ΔΠ = Π_before − Π_after.

Table 2. Per-author summary

Author	n	mean ΔΠ	SD	95% CI
Shawnna	7	0.087	0.015	[0.071 0.103]
Dian	8	0.081	0.018	[0.064 0.098]
Shayna	6	0.079	0.012	[0.066 0.092]
Teresa	6	0.085	0.016	[0.068 0.102]
Clay	6	0.083	0.014	[0.068 0.098]

Note. All authors show positive mean ΔΠ; values align with the consolidated corpus run (n = 33).

Table 3. Torque-strategy outcomes (Readers Respond)

Strategy	Π(H,P)	Converged	Steps	θ_final	σ_last
Stay & engage carefully	0.10	True	3	0.20	0.51
Leave / boycott	0.086	True	4	0.11	0.80

σ magnitudes reflect this run's parameterization; ordering (stay/engage < leave) is invariant.

6. Discussion

The claim-level view (Figure 1) and ΔΠ distribution (Figure 2) show that a single symbolic repair pass Ω consistently moves readers' language toward proportion. Cross-domain comparison: relative to the Ethicist corpus ($\Delta\Pi \approx 0.079$, n = 18), Facebook posts exhibit smaller baseline variance but higher emotional weighting E in σ

= E N W. Proportional repairs yield steadier convergence yet a lower absolute ΔΠ. Figure 3 visualizes identical downward displacement from y = x in both domains, supporting a common proportional-repair dynamic.

8. Conclusion

The Facebook reader corpus demonstrates that Buoyancy Algebra provides an interpretable, reproducible measure of proportionality and a finite-step repair that reliably reduces rhetorical pressure. The effect generalizes the earlier Ethicist result to participatory discourse. All scripts and data are available in the repository (link).