Purpose of This Note

This document records and explains the divergence between two independent diagnostic executions applied to the same paper:

Kobayashi, Yamaguchi & Yokoyama (2011),
"Generalized G-inflation: Inflation with the most general second-order field equations."

The purpose is **not** to reconcile or average the outcomes, but to document **why they differ**, which execution is **admissible under CEDA protocol**, and what the discrepancy demonstrates about the framework's operation.

This note exists to preserve auditability and prevent retrospective ambiguity.

Summary of the Divergence

Two diagnostic runs were performed on different platforms:

- **Run A (CED-008, admissible):**
  Executed strictly under pre-declared Model, Translation, and Diagnostic Cards, using **Framework Audit Mode**.

- **Run B (non-admissible exploratory run):**
  Produced a stronger verdict by implicitly invoking subfamily-level reasoning without pre-declaration.

The two runs reached **similar qualitative intuitions** about the physics but **different formal verdicts** due to differences in protocol adherence.

Key Source of Discrepancy

The divergence arises from **rule adherence**, not from disagreement about the underlying theory.

1. Audit Mode Switching (Primary Cause)

- **Run A** explicitly operated in **Framework Mode**, as declared in the Model and Diagnostic Cards.

- **Run B** implicitly shifted into **Subfamily/Submodel reasoning** (e.g., dominance limits, specific inequalities, and parameter regimes) **without declaring a Target-of-Audit change**.

Under CEDA rules, this constitutes a protocol violation.

Framework-level audits may not claim robustness or predictive wedges that rely on **restricted subsets** of the model space unless those subsets are declared in advance.

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2. Unpredeclared Robustness Claims

Run B asserted that inflationary behavior persists under “small variations” of the Horndeski functions Gi(ϕ,X)G_i(\phi,X)Gi(ϕ,X).

However, no admissible perturbation class was pre-declared:

- no fixed background slice,

- no definition of “small,”

- no restriction on functional variation.

CEDA requires all robustness claims to be tied to **explicit, pre-declared admissible variations**. Without this, robustness statements are interpretive rather than diagnostic.

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3. Predictive Wedge Inflation

Run B evaluated **D4 (Predictive Wedge)** as passing based on:

- modified consistency relations,

- blue tensor spectra,

- non-unity sound speeds.

While these features exist for **certain subfamilies**, the Model Card explicitly states that such features are **not claimed to be generic** across all Horndeski functions.

Under Framework Mode, this renders D4 **not evaluable**, not passable.

Admissibility Determination

- **Run A** is **admissible** under CEDA protocol.
- **Run B** is **non-admissible** due to:
    - undeclared audit mode switching,
    - unpredeclared admissible variations,
    - post-hoc narrowing of the target class.

Run B is retained as an **exploratory calibration artifact**, not as an official audit result.

Methodological Significance

This discrepancy is **not a flaw** in CEDA. It is evidence that:

1. **CEDA outcomes are protocol-constrained**, not analyst-driven.
2. The framework **penalizes intuitive but undeclared reasoning**, even when the physics is sound.
3. Stronger conclusions require **stronger precommitments**, not rhetorical momentum.

In other words, CEDA distinguishes between:

- *"This theory can do X under certain conditions"*
  and
- *"This theory earns X as a declared, auditable claim."*

That distinction is the point of the framework.

Resolution Path (Documented)

To recover the stronger verdict of Run B **admissibly**, one of the following must occur:

- Declare a **subfamily or submodel** (CED-008A) and rerun diagnostics under Submodel Mode.
- Explicitly define admissible GiG_iGi perturbations and re-run C1/D2/D4.
- Provide principled restrictions (symmetry, UV completion, data-driven constraints) that reduce framework freedom.

None of these steps were taken in Run B.

Final Bookkeeping Status

- **Official CED-008 verdict:**
  Conditional Mechanism Framework (Regime-Limited)
- **Exploratory alternate run:**
  Archived as **Non-Admissible (Protocol Deviation Identified)**

This bookkeeping note closes the discrepancy and preserves traceability.

Closing Remark

The existence of this note is itself a successful test of CEDA.

The framework did not “average away” disagreement.
It forced disagreement to become **explicit, localizable, and correctable**.

That is the behavior of an audit instrument, not an opinion engine.