# **Lean pre-coding sheet — 77/89**

**Component:** tests/vm\_tst\_mmp.rs (Mixed Local + Correction — MMP)

## **1) Goal & success**

**Goal:** Prove the **MMP sequence** and controls: top-up share, target basis, **correction level (national vs regional)**, overhang handling, and total-seats model. The canonical case is **VM-TST-013** with two assertions: **national correction ⇒ A/B/C = 7/3/2**; **regional correction ⇒ 8/2/2**.

**Success:** Engine returns the exact seat vectors and **Decisive** labels; audit shows deficit-driven top-up sequence and deterministic tie handling.

## **2) Scope**

**In:** allocation\_method = mixed\_local\_correction; **locals first**, then **top-ups** per deficits; compare **mlc\_correction\_level = national vs regional**; keep locals under **overhang** policy.

**Out:** Gates/frontier visuals; RNG ties (not triggered by this fixture). General proportional/WTA already covered elsewhere.

## **3) Inputs → outputs**

**Inputs (fixtures):** Three equal-pop regions; 6 **local** SMDs (A,A / B,B / C,C) and approval tallies for **vote shares**; two **ParameterSets** identical except VM-VAR-016 (**national** vs **regional**).

**Outputs (asserted):** Result.total\_seats\_by\_party at correction level; local\_seats\_by\_party; final **label**.

## **4) Entities/Tables (minimal)**

## **5) Variables (used here)**

## **6) Functions (test signatures only)**

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#[test] fn vm\_tst\_013\_mmp\_national\_level();

#[test] fn vm\_tst\_013\_mmp\_regional\_level();

Asserts exact seat vectors and Decisive labels for both correction levels.

## **7) Test logic (bullet outline)**

**Setup:** Load VM-TST-013 bundle (REG/Options/Tallies/PS). Locals: A=2, B=2, C=2. National shares ≈ A **56.7%**, B **21.7%**, C **21.7%**. **T=12**, **TopUp=6**.

**National correction:** compute **targets** on T=12; iteratively assign top-ups to **largest positive deficit** (tie: higher share → deterministic order). **Expect A/B/C = 7/3/2**.

**Regional correction:** targets per region (2 top-ups each), then totals **A/B/C = 8/2/2**.

## **8) State flow (very short)**

Pipeline: **ALLOCATE locals → compute targets (per VM-VAR-016) → assign top-ups from pool → aggregate totals → label**. Locals are **never taken away**; overhang allowed by default.

## **9) Determinism & numeric rules**

Use exact integers; compare deficits deterministically: **largest deficit → higher vote share → deterministic order**; only then RNG if policy allows (not used here). Stable Unit/Option orders, canonical JSON.

## **10) Edge cases & failure policy**

If total\_seats\_model = variable\_add\_seats with add\_total\_seats: seats may grow to clear remaining deficits; record final **T**. (Not used in this test; keep branch covered by a separate case if added later.)

If locals already exceed targets (**overhang**), do **not** remove them; remaining top-ups prefer non-overhung parties when policy ≠ default.

## **11) Test checklist (must pass)**

**National:** total\_seats\_by\_party = {A:7,B:3,C:2}; label **Decisive**.

**Regional:** {A:8,B:2,C:2}; label **Decisive**.

Allocation audit shows **deficit-driven** sequence consistent with Doc 4B; deterministic tie rule applied where deficits equal.