Sizing MRMC Study Flow Chart:

Two options for input:

1. **OR‑style inputs**: (readers, accuracy\_level, delta, ratio, rangeb, rangew, r1, r2, r3, rb) → use mrmc\_ss()
2. **RMH‑style inputs**: (AUC1, AUC2, var\_R, var\_TR, var\_C, var\_TC, var\_RC, var\_error, correlations) → use uniroot\_case\_ss()

Overall Scheme:

1. Convert parameters (if needed) OR → RMH (OR\_to\_RMH) (Hillis 2018)
2. Build variance components sums (Ω, modality) → build\_sigma\_sums() (Gallas & Hillis 2014)
3. Compute Δ1, Δ2 from AUCs & sigmas (done automatically in conversion step if OR parameters given) (based on Gallas & Hillis 2014 Eq. 9)
4. Compute moments (single & cross) → compute\_moments\_df() using helper functions moments\_single(), moment\_single\_l(), moments\_cross(), and moment\_cross\_l() (Gallas & Hillis 2014 Table 3)
5. Convert to Δ‑moments → delta\_moments() (Chen, Gong, Gallas 2018 Section 2.2)
6. Decompose Var(ΔA) → VR\_VC\_delta() and var\_deltaA() (Chen, Gong, Gallas 2018 Section 2.2)
7. Compute power → power\_two\_sided() or power\_noninferiority() (Chen, Gong, Gallas 2018 Eq. 14)
8. Search N0/N1 by root‑finding until power ≥ target → uniroot\_case\_ss() or mrmc\_ss()

Current Problems:

* disconnect somewhere between steps 3 and 4... we have variances, but the moments are not coming out right

Functions in functions\_moments:

build\_OR\_scenarios()

OR\_scenario\_to\_RMH()

build\_sigma\_sums()

coeff\_vector()

expected\_auc()

midpoint\_integral()

moment\_single\_l()

moment\_cross\_l()

moments\_single()

moments\_cross()

compute\_moments\_df()

.c\_coeffs()

delta\_moments()

VR\_VC\_delta()

var\_deltaA()

power\_two\_sided()

power\_noninferiority()

evaluate\_power\_all()

power\_two\_sided\_check()

evaluate\_power\_check()

evaluate\_power\_new() #will probably remove this one

convert\_to\_OR()

uniroot\_case\_ss()

mrmc\_ss()