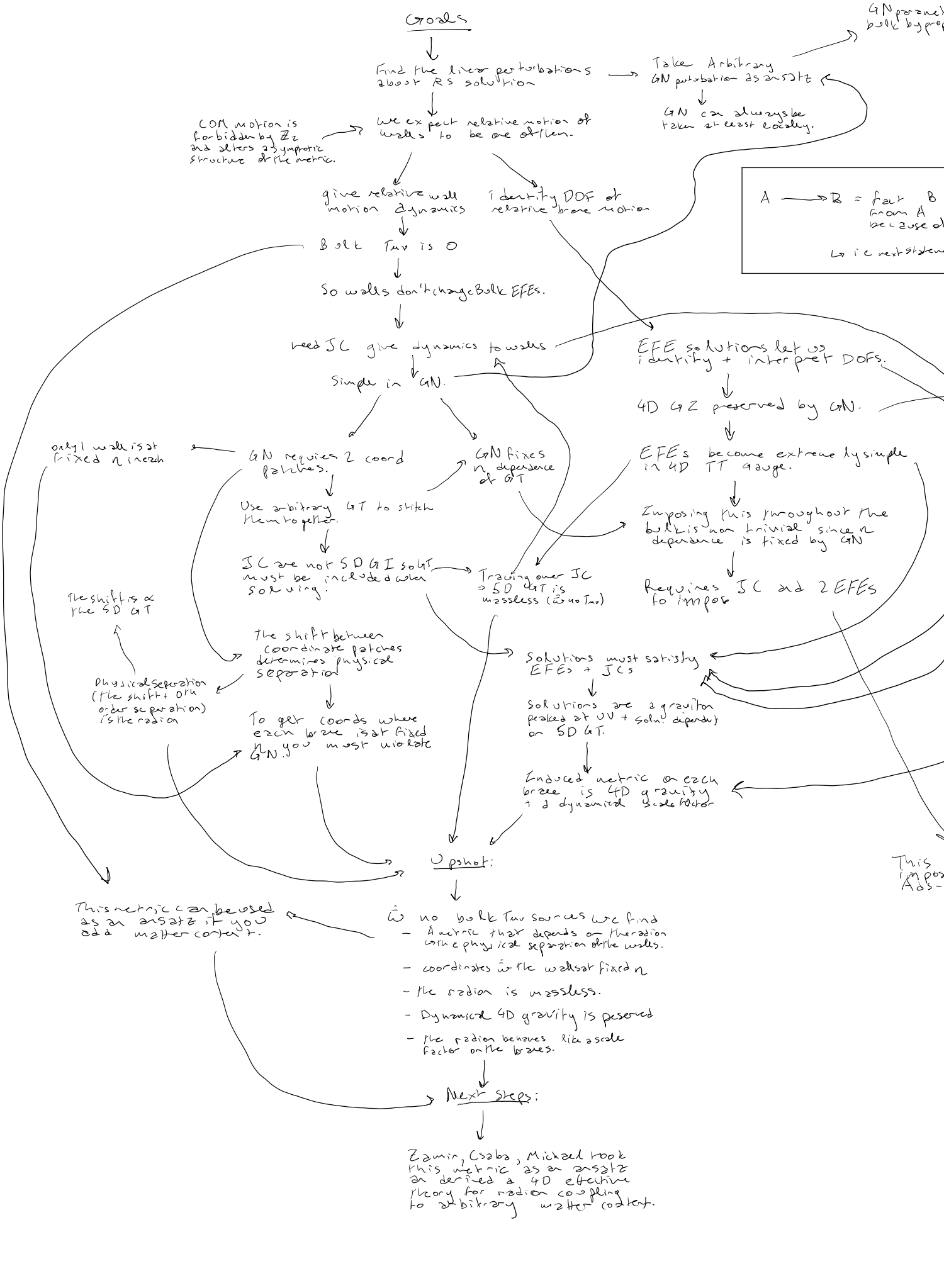
Goals
Find the linear perturbations about RS solution
Take Arbitrary GN perturbation as an ansatz
GN can always be taken at least locally.
COM motion is forbidden by $\mathbb{Z}_2$ and alters asymptotic structure of the metric.
We expect relative motion of walls to be one of them.
give relative wall motion dynamics
identify DOF of relative brane motion
Bulk T_{MN} is 0
So walls don't change Bulk EFEs.
need JC give dynamics to walls
Simple in GN.
EFE solutions let us identify + interpret DOFs.
4D GR preserved by GN.
EFEs become extremely simple in 4D TT gauge.
Imposing this throughout the bulk is non trivial since n dependence is fixed by GN
Requires JC and 2 EFEs
only 1 wall is at fixed n in each
GN requires 2 coord patches.
GN fixes n dependence of GT
Use arbitrary GT to stitch them together.
JC are not 5D GI so GT must be included when solving.
Tracing over JC ⇒ 5D GT is massless ($\tilde{w}$ no T_{MN})
The shift is a the 5D GT
The shift between coordinate patches determines physical separation
Physical separation (the shift + O(n) order separation) is the radion
Solutions must satisfy EFEs + JCs
Solutions are a graviton peaked at UV + soln dependent on 5D GT.
To get coords where each brane is at fixed n in GN you must violate
Induced metric on each brane is 4D gravity + a dynamical scale factor
Upshot:
This metric can be used as an ansatz if you add matter content.
$\tilde{w}$ no bulk T_{MN} sources we find
- A metric that depends on the radion via physical separation of the walls.
- coordinates w/ the walls at fixed n
- the radion is massless.
- Dynamical 4D gravity is preserved
- the radion behaves like a scale factor on the branes.
Next steps:
Zamir, Csaba, Michael took this metric as an ansatz & derived a 4D effective theory for radion coupling to arbitrary matter content.
A → B = fact B from A because of
↳ i.e. next step

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follows
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V
makes it hard to
ET gauge in
s