Splitting the differences in climate sensitivities between models into components associated with differences in formulation or emergent feedback

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With the climate sensitivities of the real world uncertain, research has looked for physical understanding from analyzing the climate sensitivities that emerge from General Circulation Models (GCMs) and the physical processes responsible.
However, the change in climate sensitivity due to any given change in formulation or in emergent feedback depends on the initial climate sensitivity. This makes it impossible to quantify the impact of that change except in a specific context, and even then, if it is combined with any other change(s), some convention is needed to split up the impact of this combination of changes.

Two conventions for breaking down the difference in ECS between GCMs into components associated with differences in formulation or in feedback have been used, both to estimate contributions to spread across multi-model ensembles. One starts by breaking down the actual ECS of each GCM, not just the differences, but this forces some inconsistency and unintuitive features when it is used for comparing ECS between GCMs. The other aims only at comparing GCMs, but to obtain linearity makes approximations that mean its terms do not add up to the total change.

This paper considers possible desiderata for comparison of pairs of GCMs, a more demanding case than estimating contributions averaged over ensembles, in that physical insight is wanted from every number calculated, and derives a convention that satisfies them all, avoiding these drawbacks of the existing conventions.
Of course the warming assigned to a given change in one factor still depends on context, but it seems that this new convention may be about as good as is possible.