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Interactive comment on "Control of 3D tectonic inheritance on fold-and-thrust belts: insights from 3D numerical models and application to the Helvetic nappe system" *by* Richard Spitz et al.

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Dear authors,

Many thanks for the replies to the reviews and the revision of your manuscript. I acknowledge the challenges of 3D numerical models, that include plasticity, and the direct application of insights learned to natural systems, so please take the following as constructive input from my side for your manuscript. As you will know (since one of the co-authors is involved), Solid Earth recently published a manuscript "Tectonic inheritance controls nappe detachment, transport and stacking in the Helvetic nappe system, Switzerland: insights from thermomechanical simulations" by Kiss, Duretz and Schmal-

holz (https://www.solid-earth.net/11/287/2020/). This paper considers the same area and also uses numerical experiments to gain insight in the Helvetic nappe system, but in 2D. I noticed that the setup is very similar to the one in your manuscript. What i would like to ask is the following:

(1) To discuss the similarities and differences between the study of Kiss et al and your study. It would allow an elaboration of what we learn from using 2D versus 3D experiments in a complex area.

(2) A verification or statement that a 2D version of your model would give similar results to Kiss et al (2020), or if not, why not.

(3) and more minor, could you discuss whether the properties and thickness of the sticky air layer follow the recommendations by Crameri et al (2012, GJI 189)?

Many thanks, Susanne Buiter

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Interactive comment on Solid Earth Discuss., https://doi.org/10.5194/se-2019-173, 2019.