Response to Referee Report 1

We would like to thank the referee for their careful reading of the manuscript and their useful comments and suggestions, and for pointing out directions for further development. Below, we provide point-by-point responses to the referee's comments.

Referee Comment 1: Footnotes

"The paper has a large number of footnotes. This sometimes interrupts the logic flow of the paper and can be distracting for the reader. The authors may consider reorganizing and incorporating some of the footnotes into the main text (at least for the introductory section)."

Response: We thank the referee for this feedback. We have modified the file accordingly. In particular, we have incorporated most of the footnotes (from the Introduction) to the main text. In particular we have merged two of the larger footnotes as a separate subsection 1.5. We hope this is now satisfactory.

Referee Comment 2: Higher-dimensional Features

"Regarding new features in higher dimensions mentioned in the discussion, it seems the difference should become more evident when going to higher-point correlators. The number of cross ratios are different, i.e., $n-2$ *v.s.* $n(n-3)/2$ *for* $n \leq d+2$*. Therefore, the analytic structure of correlators presumably will be very different."*

Response: We thank the referee for making this important point. We have added a paragraph in the Conclusion section (see the second last paragraph), and have thanked the referee for making this point.

Referee Comment 3: D-functions in Higher Dimensions

"As an initial step of higher dimensional exploration, the authors considered D-functions in footnote 63 and Appendix D. However, this example might be a bit too special because D-functions are almost ignorant of the AdS dimension (only appearing as an overall factor). This comment also applies to exchange Witten diagrams which can be written as sums of D-functions. Perhaps one should also look at one-loop correlators for the effect of higher dimensions to be potentially nontrivial."

Response: We thank the referee for making this comment. We have added a paragraph at the end of appendix D: "We parenthetically note that the D function is the result of a correlator

computed using contact diagram in the bulk of AdS (via the AdS/CFT correspondence). It would be interesting to perform an analysis similar to this appendix, on the more complicated analytic structures that arise out of exchange or loop computations in the bulk."

Referee Comment 4: Factorized Structure

"Related to this, the comment that the factorized structure (1) does not apply does not seem very accurate. It depends on whether one is okay with decomposing the higher dimensional correlator into two dimensional conformal blocks. The decomposition is always possible by using the dimensional reduction formula for conformal blocks. Then one would always find such a factorized structure."

Response: We agree with the Referee that the comments on this footnote 48 are potentially confusing. In response to the referees comments, we have truncated the footnote, omitting the statement the comment about factorization.

Referee Comment 5: Defects and Future Extensions

"Another interesting extension of the authors' analysis is correlators in CFTs with defects. When the defect has co-dimension greater than 1, the defect two-point function also has two cross ratios which can be identified to z, $\bar{z}$ of the defect-free four-point function after a conformal map. The generalization can be made more or less straightforwardly (at least similar to defect-free four-point functions in higher dimensions), but also with new features introduced by the presence of the defect. Understanding the branch structure in this case is also very important as it is relevant for using the dispersion relations or applying the flat-space limit formula. The authors may optionally consider mentioning this in the outlook to further extend the scope of this paper."

Response: We thank the referee for making this interesting point. We have added a short paragraph (third last paragraph in the conclusions section) making this point and thanking the referee for the suggestion.

Once again, we thank the referee for their detailed and thoughtful feedback which has improved our paper. We hope the paper is now suitable for publication.

Sincerely,
Suman Kundu, Shiraz Minwalla, Abhishek Navhal