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Katharine Turner, **Yuriy Milyeko** and **Sayan Mukherjee*** (sayan@stat.duke.edu),
Durham, NC 27708, and **John Harer**. *Fréchet means for distributions of persistence diagrams*
(*Part 2*). Preliminary report.

We state requirements for a topological summary to be used in inference. For the case of the persistence diagram we develop these requirements and give examples of how this summary can be used in inference. Examples include law of large numbers, hypothesis testing, and classification/regression. (Received September 03, 2012)