Title:	A comprehensive understanding of the synthons involving C-H···F-C hydrogen bond(s) from structural and computational analyses
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Abstract:	The studies of weak interactions involving “organic fluorine” have resulted in a number of conflicts in the literature. Although the involvement of a C–F group in influencing the crystal packing has been demonstrated in various compounds, no one has emphasized the consistency of the synthons formed by C–H···F–C hydrogen bonds. Herein, we have attempted to draw a correlation between the formation of a particular synthon and the positions of the fluorine substitutions from the structural analyses of a model system of tetrafluoro substituted N-benzylideneanilines. A few frequently occurring supramolecular synthons involving C–H···F–C hydrogen bonds have been identified in these and related molecules, and have been quantified by ab initio calculations using the MP2 level of theory and the 6-31+G* basis set in the gas phase. The topological properties of these C–H···F–C hydrogen bonds have been calculated using AIM2000. The nature, strength, directionality and synthon reproducibility of the C–H···F–C hydrogen bonds are the key features presented in this article.
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