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Conjectural Normal Form for Elements of Coxeter Groups. Preliminary report.

Let (W, S) be an arbitrary Coxeter system. We discuss a notion of closure in the root system (or reflections). We also introduce other types of subsets of roots and describe their relationship to closed subsets. We describe some conjectures, posed by Dyer, inspired by closure in the root system. Finally, we provide an application of these conjectures, which would lead to a normal form for elements of the Coxeter group; moreover, we mention the cases where these conjectures are known to be true. (Received August 23, 2011)