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Relations Among Helicity Amplitudes for $2 \longrightarrow 2$ Scattering in the Parke-Shadmi Spin Basis GREGORY MAHLON, Penn State Mont Alto — When studying angular correlations in high energy scattering processes, it has proven fruitful to consider spin bases other than the traditional helicity basis in situations where the final state particles have significant masses (e.g. top quarks, electroweak gague bosons, Higgs bosons, etc.). We present differential identities connecting the helicity amplitudes for different total spin projections of the final state. These relations may be used as simple cross-checks of calculations of these amplitudes or as a means of deriving additional amplitudes, bypassing the need to calculate the entire set of amplitudes for a specific process explicitly.

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