

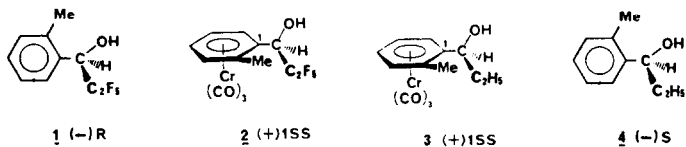
PERFLUOROETHYL ARYL CARBINOLS AS INDUCERS OF CHIRALITY IN PRELOG TYPE SYNTHESSES

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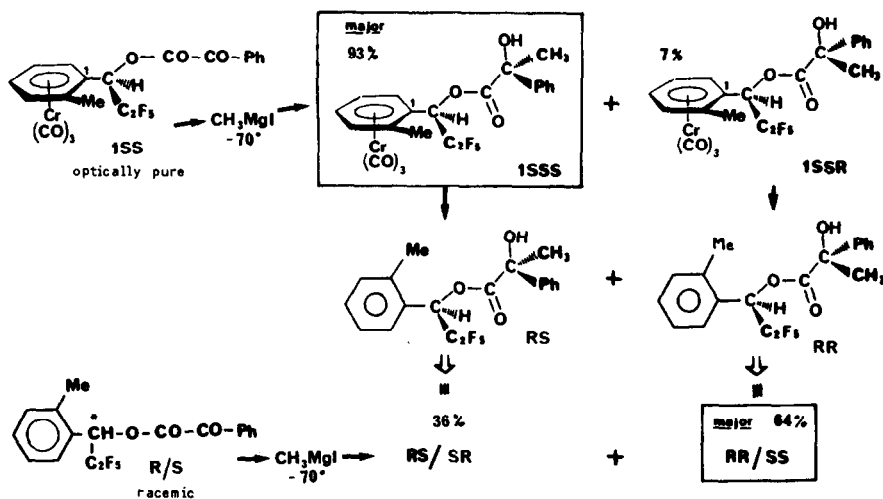
It is shown that perfluoroethyl behaves differently than an ethyl group during methyl Grignard addition on α -keto-esters

Additions of methyl Grignard reagent on α -keto-esters derived from optically pure alcohols 1, 2, 3 and 4 have been studied. As shown on the drawings all these alcohols have the same absolute configuration for the chiral carbon and alcohols 2 and 3 have also the same chirality for the complexed part of the molecule.



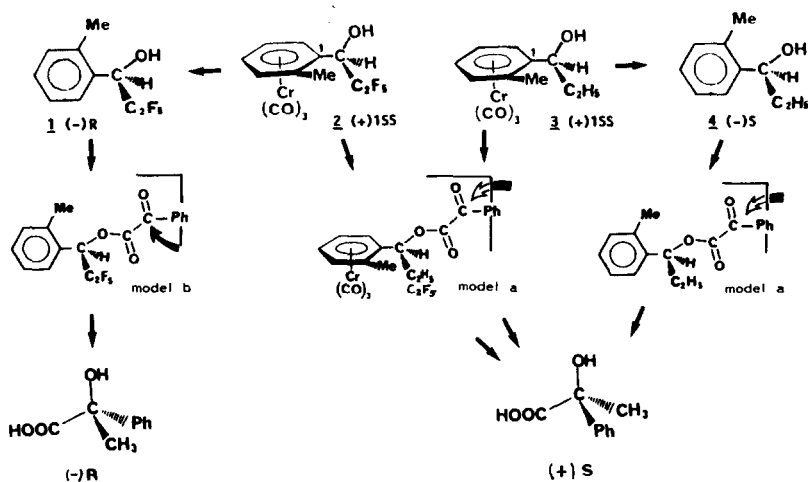
It was found that α -keto-esters derived from alcohols 2, 3 and 4 lead to S(+) atrolactic acid according to model of approach a^{*}, but that the α -keto-ester derived from alcohol 1 leads to R(-) atrolactic acid implying a different approach : model b^{*} (schemes 1, 2).

It thus appears that in the absence of the Cr(CO)₃ group a perfluoroethyl behaves differently than an ethyl group, which is consistent with the known electronic differences between fluorine and hydrogen atoms.



Scheme 1

Alcohols **1** to **4** are synthesized optically pure from the corresponding complexed α -substituted benzaldehyde (**1**) after resolution (**2**).



Scheme 2

*For the sake of simplicity, models of approach a and b are drawn according to Prelog suggestion. Many other conformations could of course be used which would also rationalize the results.

- 1 A. Solladié-Cavallo and J. Suffert ; Tetrahedron Lett., 25, 1897, 1985
- 2 A. Solladié-Cavallo G. Solladié and E. Tsamo ; Inorg. Synthesis, Vol. 23, p.85, 1985.