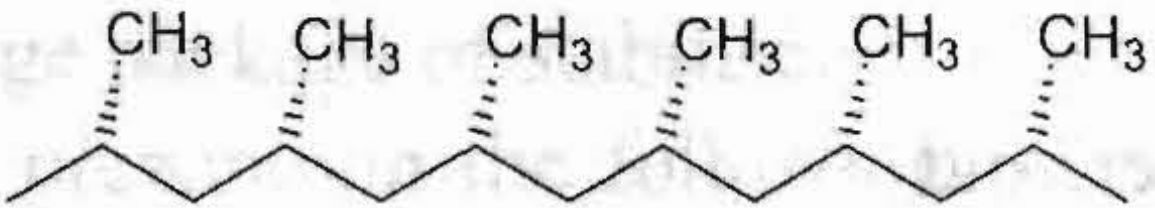
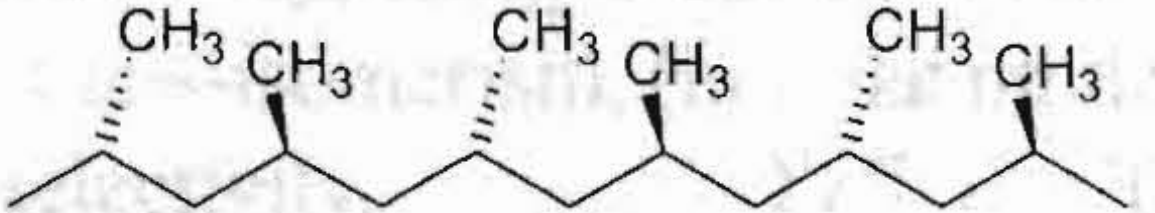


isotactic polypropene



syndiotactic polypropene

Figure 10.1. Microstructures of polypropylene

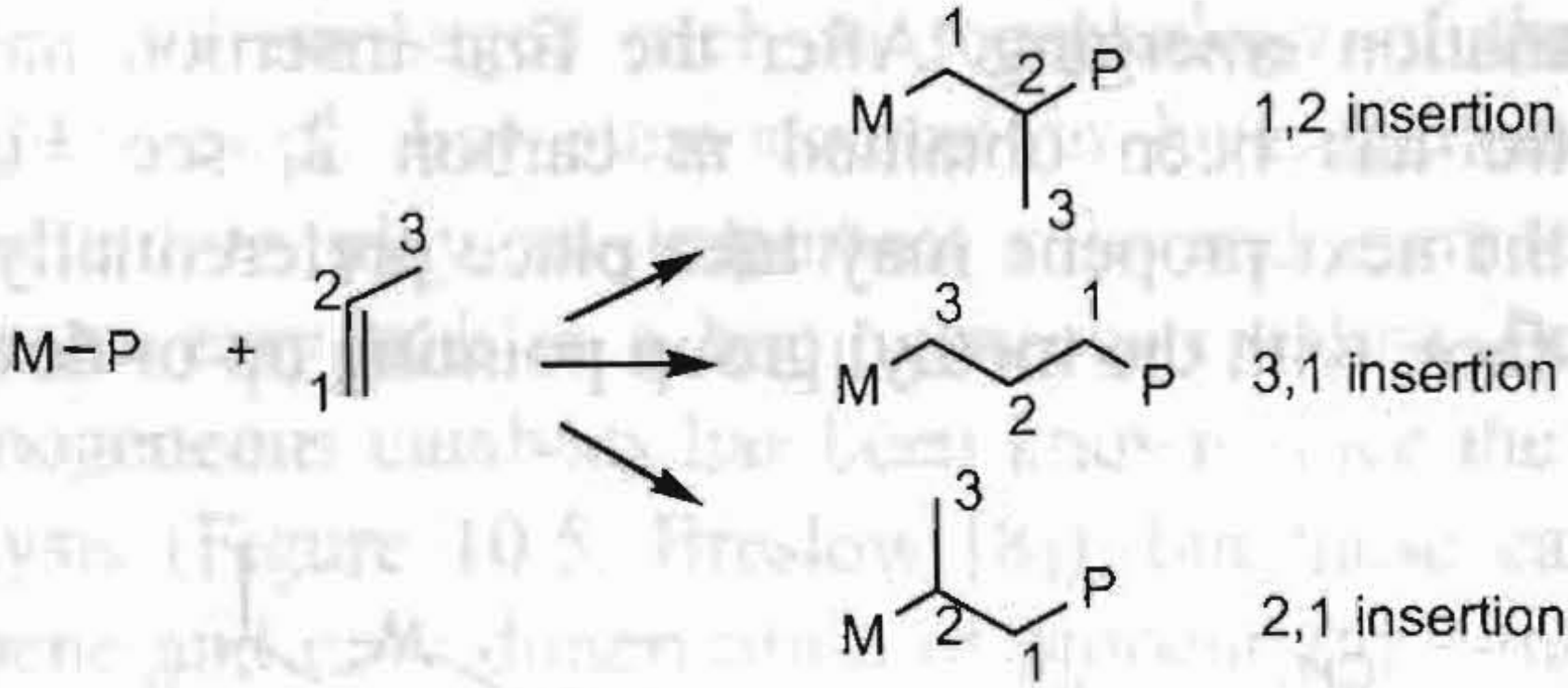


Figure 10.3. Insertion modes

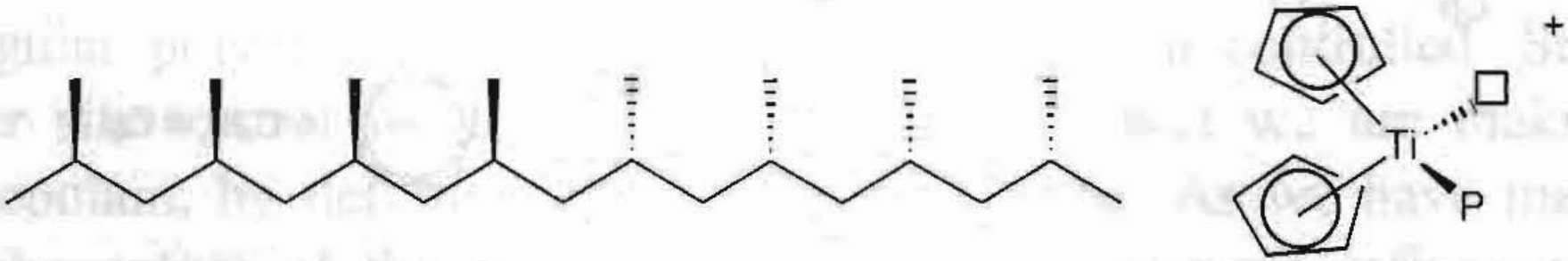


Figure 10.6. Stereo-block catalyst, Ewen [6]

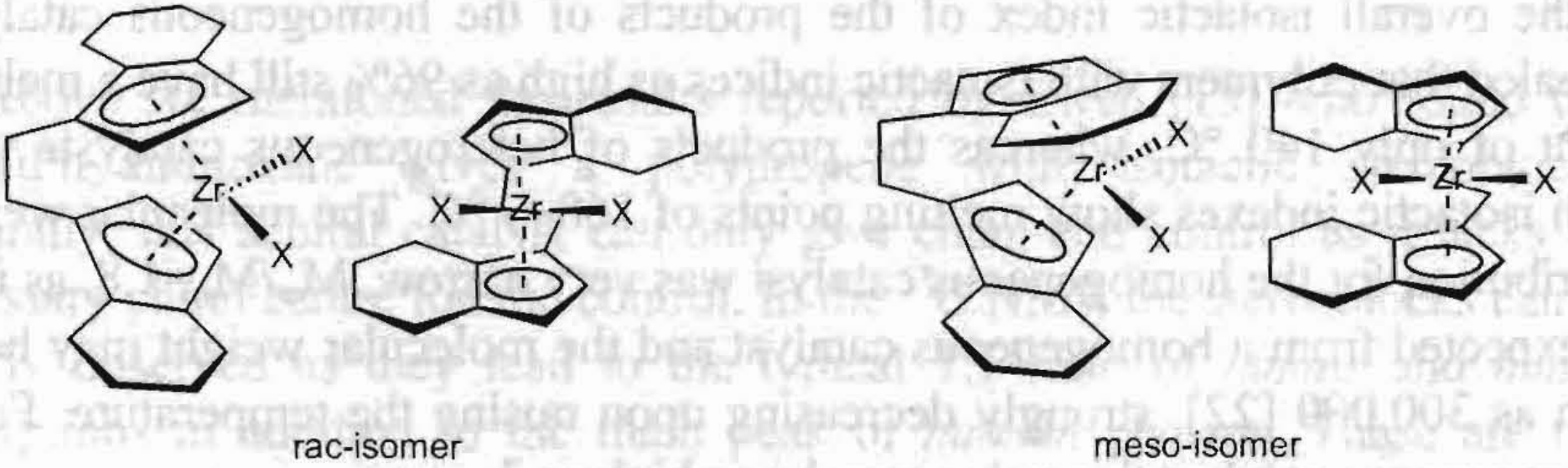


Figure 10.13. Structure 1,2-ethanediyl-tetrahydroindenyl-ZrX_2

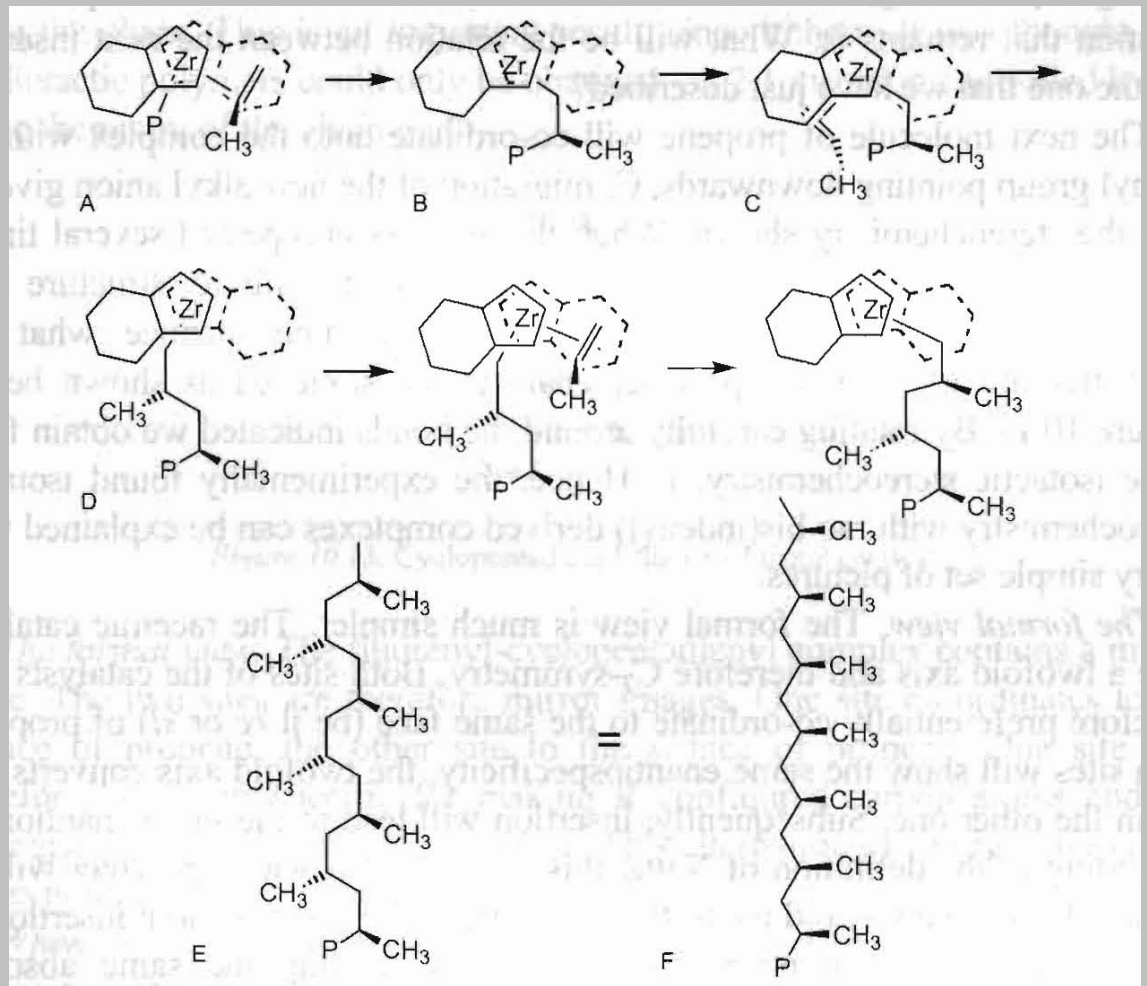
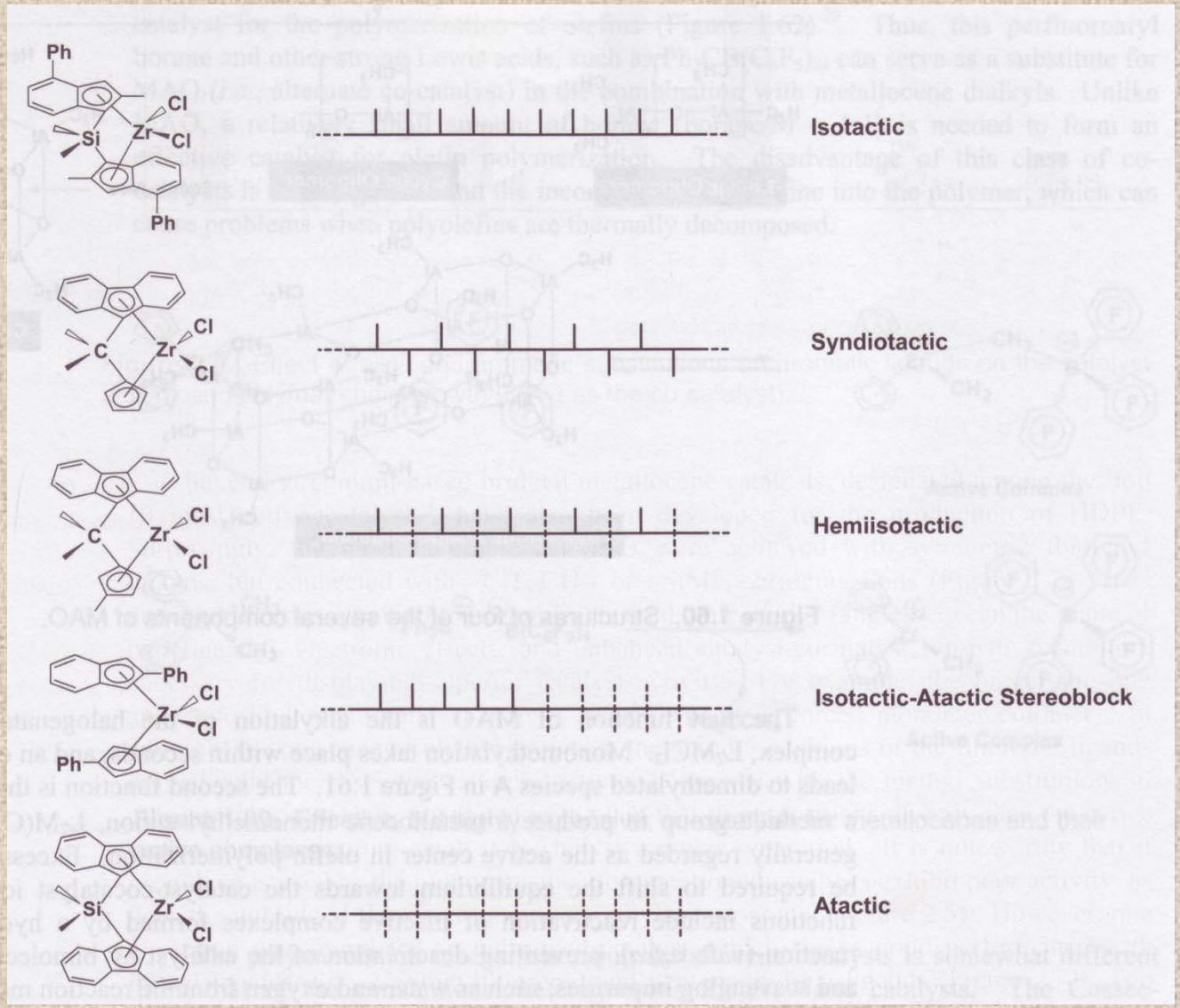
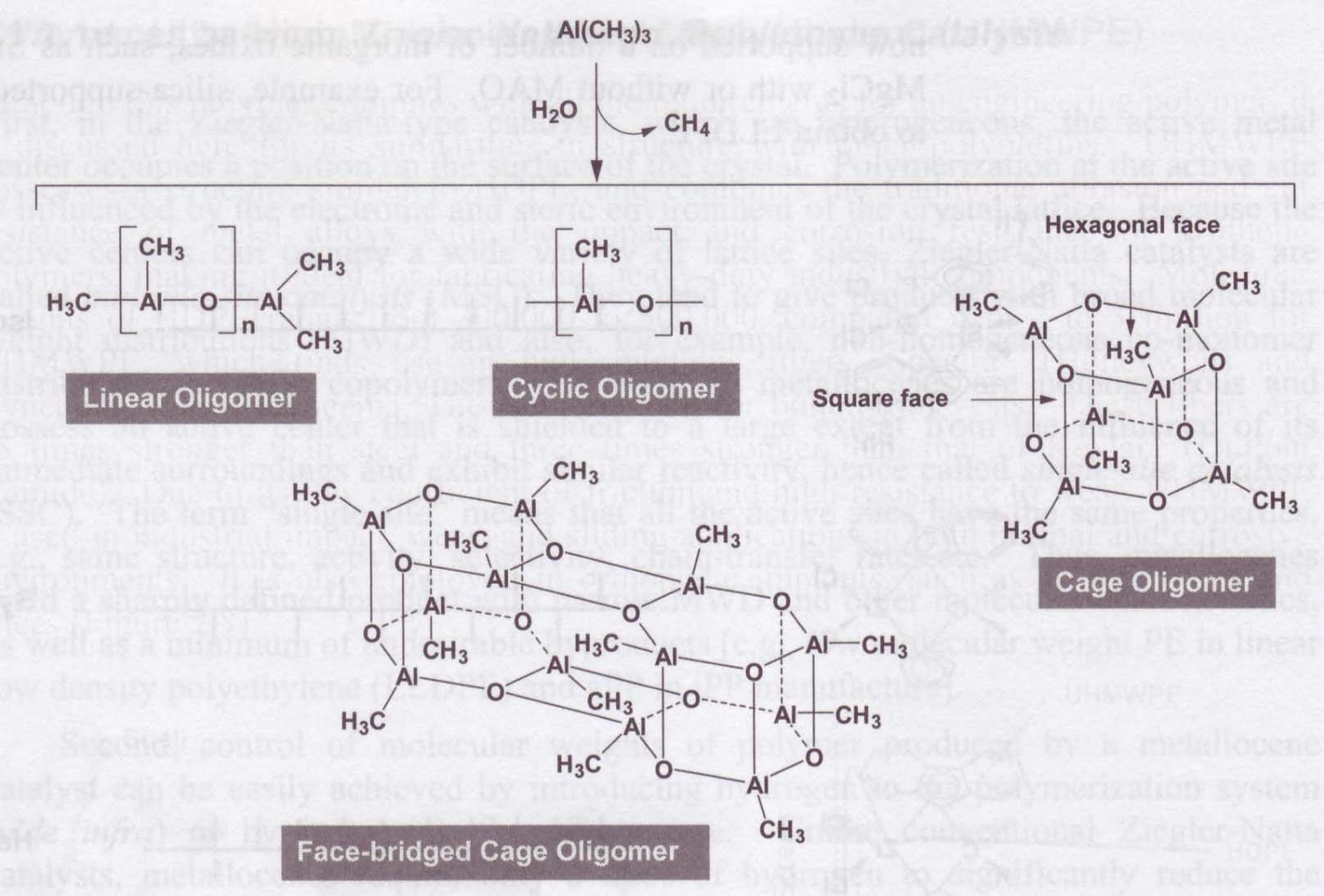


Figure 10.14. Simplified view of site-controlled isotactic polymerization

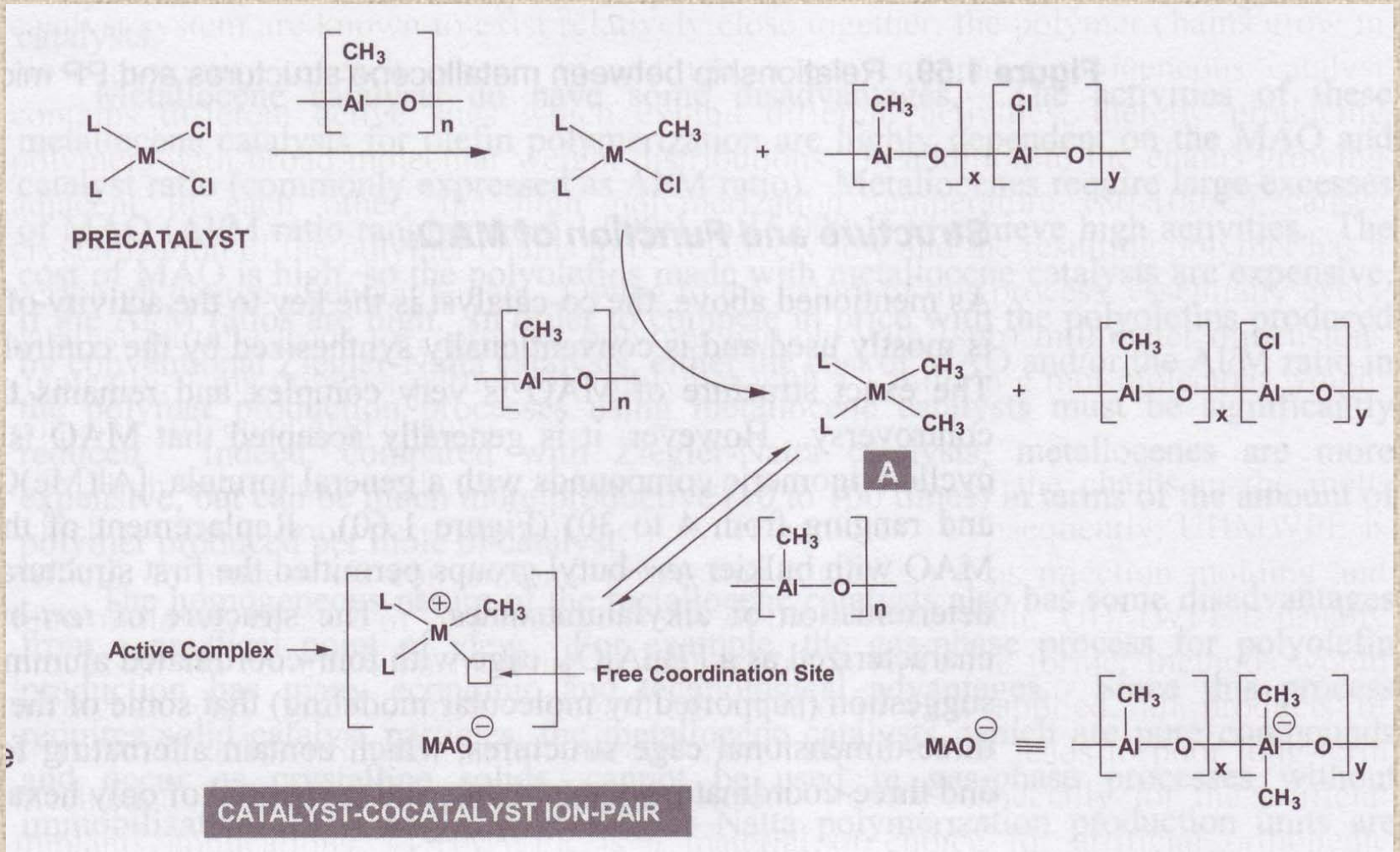
Relationship between metallocene structures and PP microstructures.



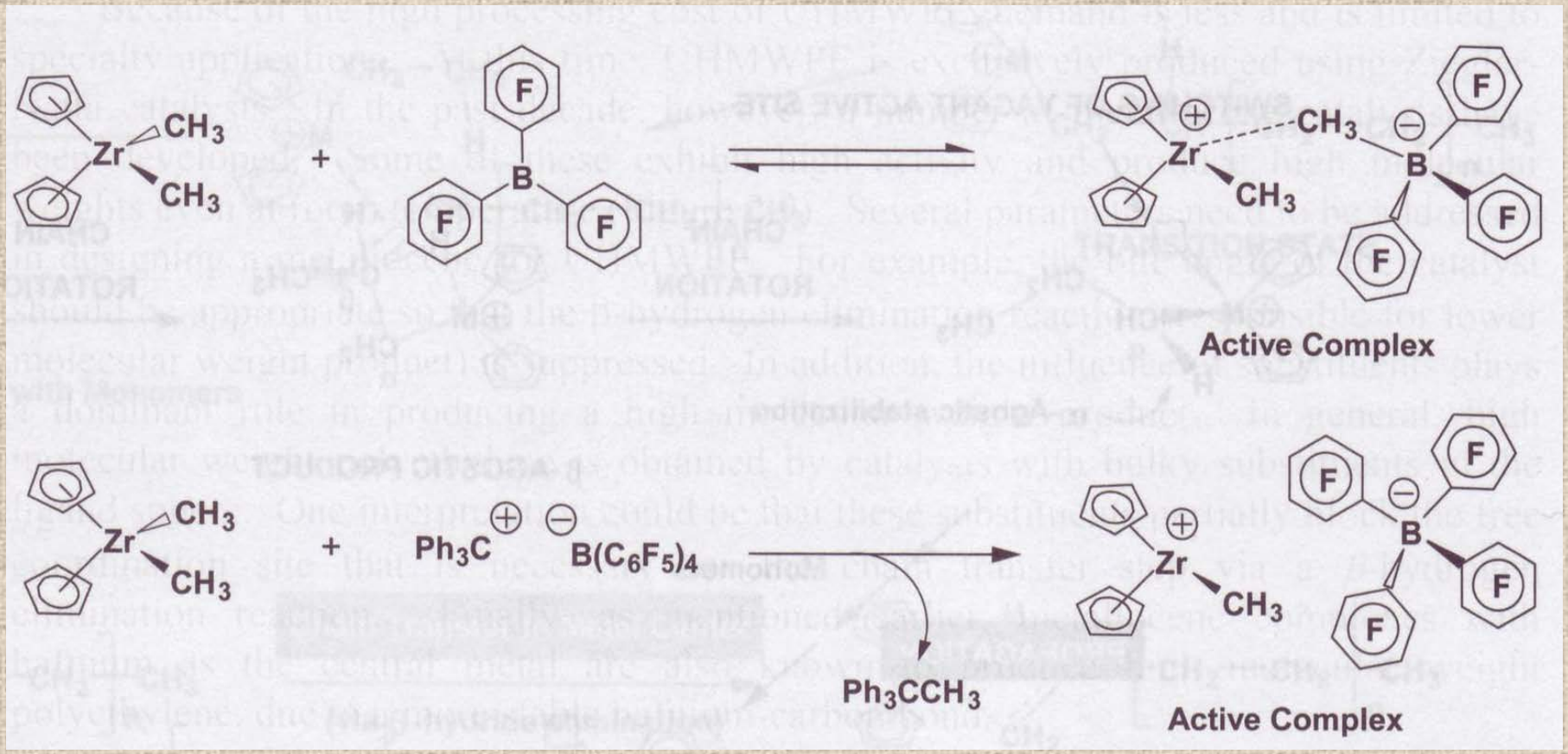
Structures of four of the several components of MAO.



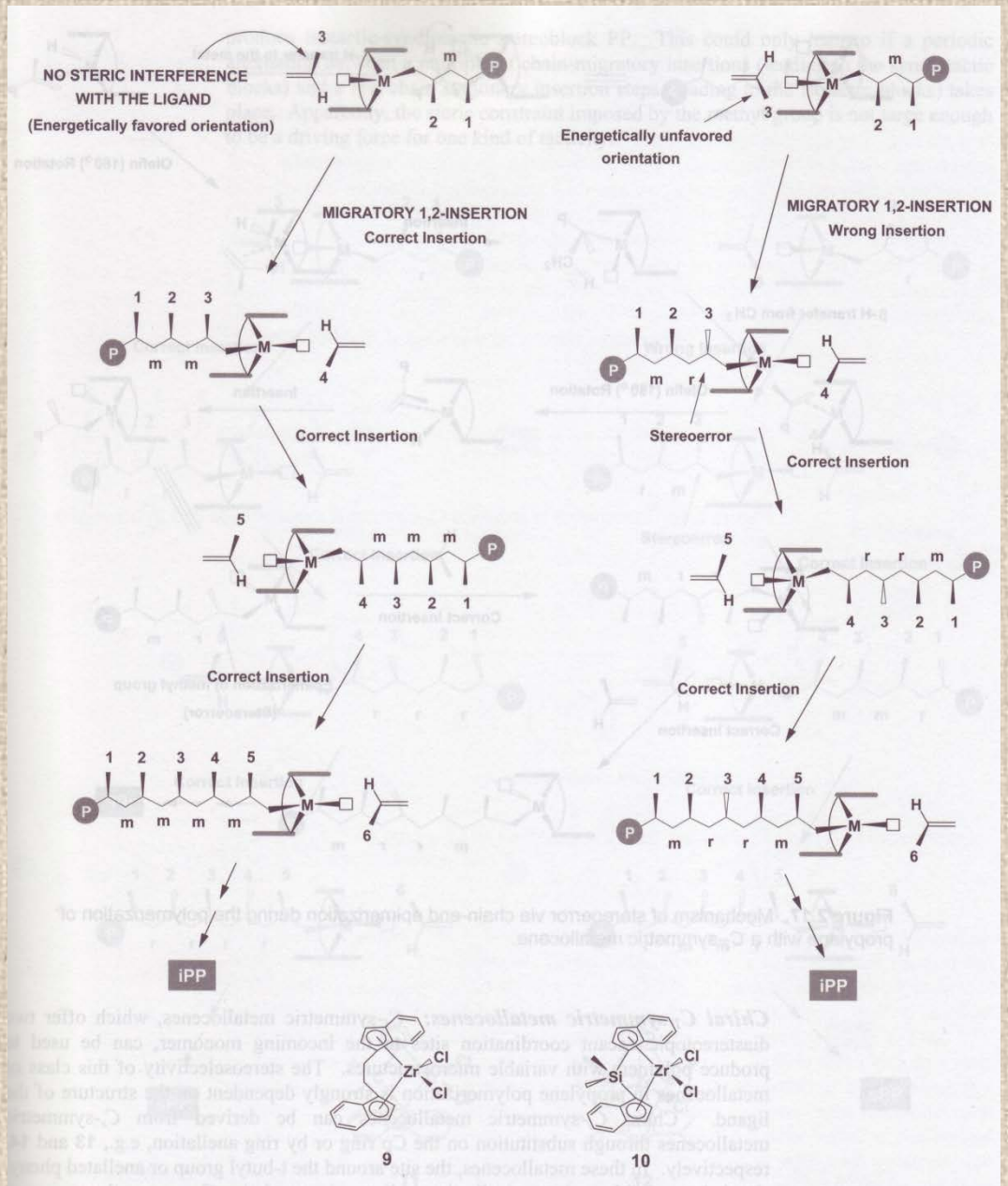
Role of cocatalyst in metallocene chemistry.



Effective, but highly expensive, co-catalyst for metallocenes and their active complexes.

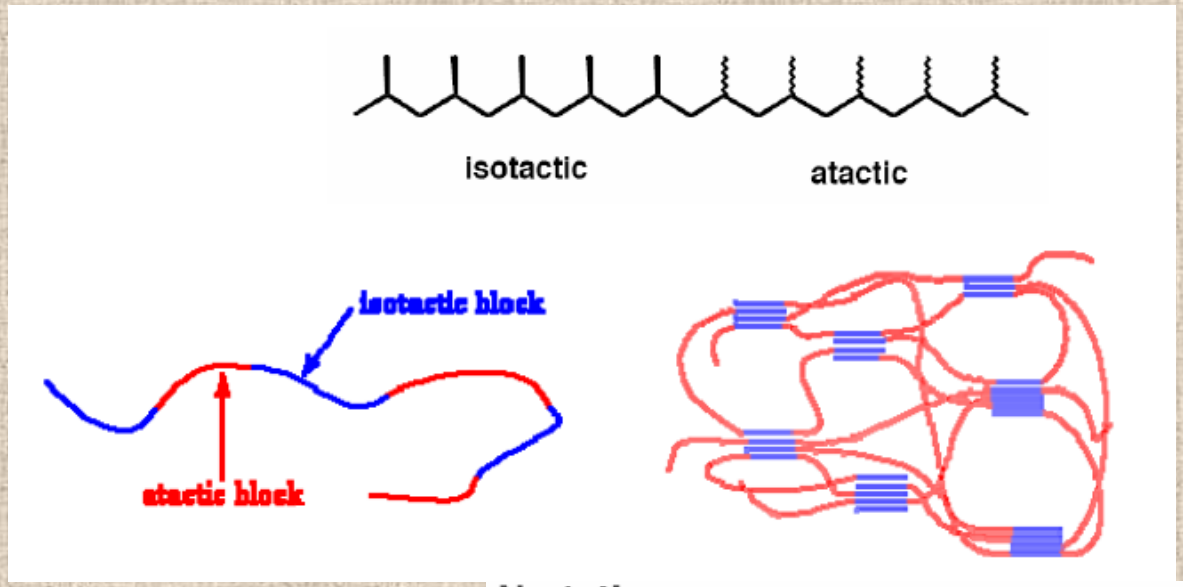


Polymerization of propylene with a C_2-symmetric metallocene.

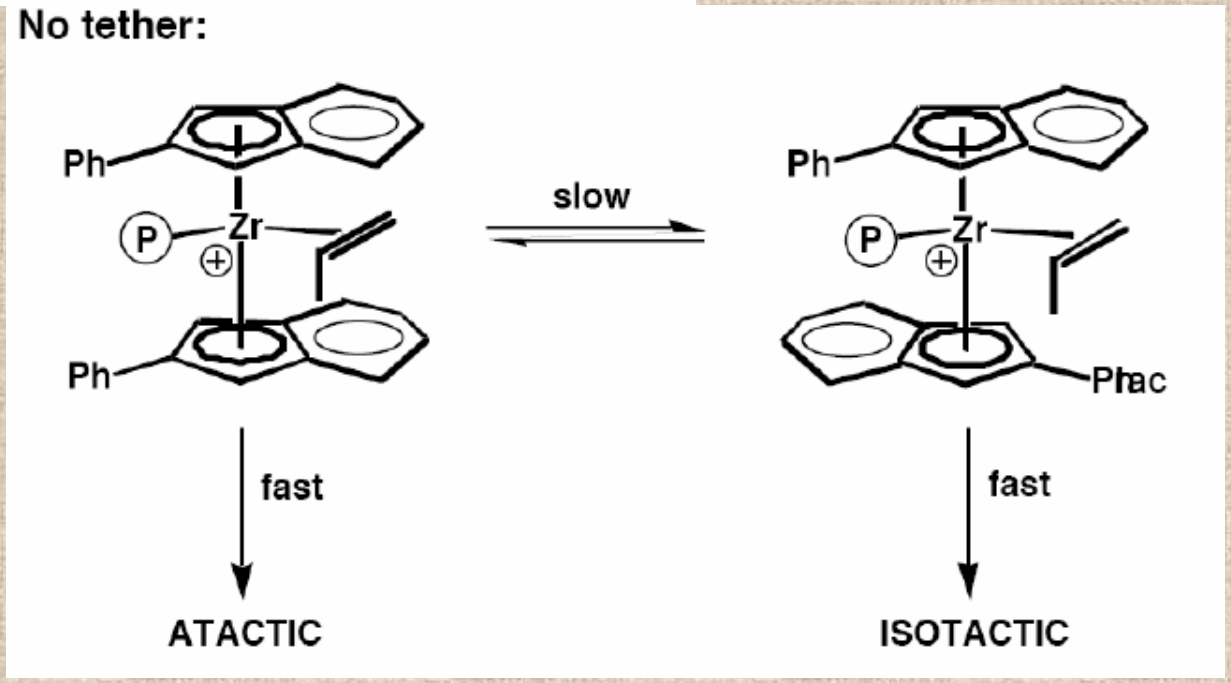


Left: The steric demand of the ligand forces propylene to approach the active center via an energetically favored enantiofacial orientation leading to isotactic polypropylene (*meso* stereosequences).
Right: Stereoerror as a result of 'wrong' enantiofacial orientaion of propylene. Note that the error is corrected in the next insertion.
Below: Examples of bridged C_2-symmetric metallocenes.

Atactic-Isotactic Block Polypropylene



No tether:



What Each Number Means

(For even more detail than this, see: http://www.americanplasticscouncil.org/benefits/about_plastics/resin_codes/resin.html)

#1 - Polyethylene Terephthalate (PETE) or (PET). Polyester is its nickname.

Used for: soft drink and water bottles, beer bottles, mouthwash bottles, peanut butter and salad dressing containers, ovenable film, ovenable pre-prepared food trays.

Recycled into: Polar fleece clothing, fiber, tote bags, bottles, clothing, furniture, carpet.

#2 - High Density Polyethylene (HDPE).

Used for: milk, water and juice containers, trash and retail bags, liquid detergent bottles, yogurt and margarine tubs, cereal box liners.

Recycled into: liquid laundry detergent containers, drainage pipe, oil bottles, recycling bins, benches, pens, doghouses, vitamin bottles, floor tile, picnic tables, lumber, mailbox posts, fencing.

#3 - Vinyl (Polyvinyl Chloride or PVC)

Used for: Clear food packaging, shampoo bottles, medical tubing, wire and cable insulation. There has been increasing concern over the potential toxicity of PVC, watch the media for developments.

#4 - Low Density Polyethylene (LDPE)

Used for: Bread bags, frozen food bags, squeezable bottles (e.g. honey, mustard).

#5 - Polypropylene (PP)

Used for: Ketchup bottles, yogurt containers and margarine tubs, medicine bottles

#6 - Polystyrene (PS)

Used for: Compact disc jackets, food service applications, grocery store meat trays, egg cartons, aspirin bottles, cups, plates.

#7 - Other: Use of this code indicates that the package in question is made with a resin other than the six listed above, or is made of more than one resin used in combination.

Used for: Three and five gallon reusable water bottles, some citrus juice and ketchup bottles