spectator mechanism

A pre-association mechanism in which one of the molecular entities, C, is already present in an encounter pair with A during formation of B from A, but does not assist the formation of B, e.g.

\[
\text{A} + \text{C} \xrightarrow{\text{pre-association}} (\text{A} \cdots \text{C}) \xrightarrow{\text{encounter complex}} (\text{B} \cdots \text{C}) \xrightarrow{\text{encounter complex}} \text{product}
\]

The formation of B from A may itself be a bimolecular reaction with some other reagent. Since C does not assist the formation of A, it is described as being present as a spectator, and hence such a mechanism is sometimes referred to as a spectator mechanism.

See also: microscopic diffusion control

Source:
PAC, 1994, 66, 1077 (Glossary of terms used in physical organic chemistry (IUPAC Recommendations 1994)) on page 1165