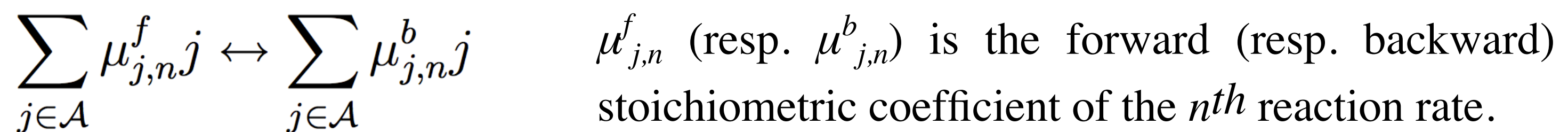


# Hybrid Transported-Tabulated Chemistry (HTTC) [1]

**MODELING STRATEGY:** All the species which are non-zero in fresh and burnt gases are transported, and the intermediate radicals are expressed from self-similar responses.

Let us consider a mixture that involves a set  $A$  of  $q$  distinct chemical species  $j$ , interacting in a detailed chemical scheme according to  $N$  elementary reactions:



**Reaction rate of  $j$ -species:** 
$$\dot{\omega}_j = W_j \sum_{n=1}^N \left( \mu_{j,n}^b - \mu_{j,n}^f \right) \dot{\omega}_n$$

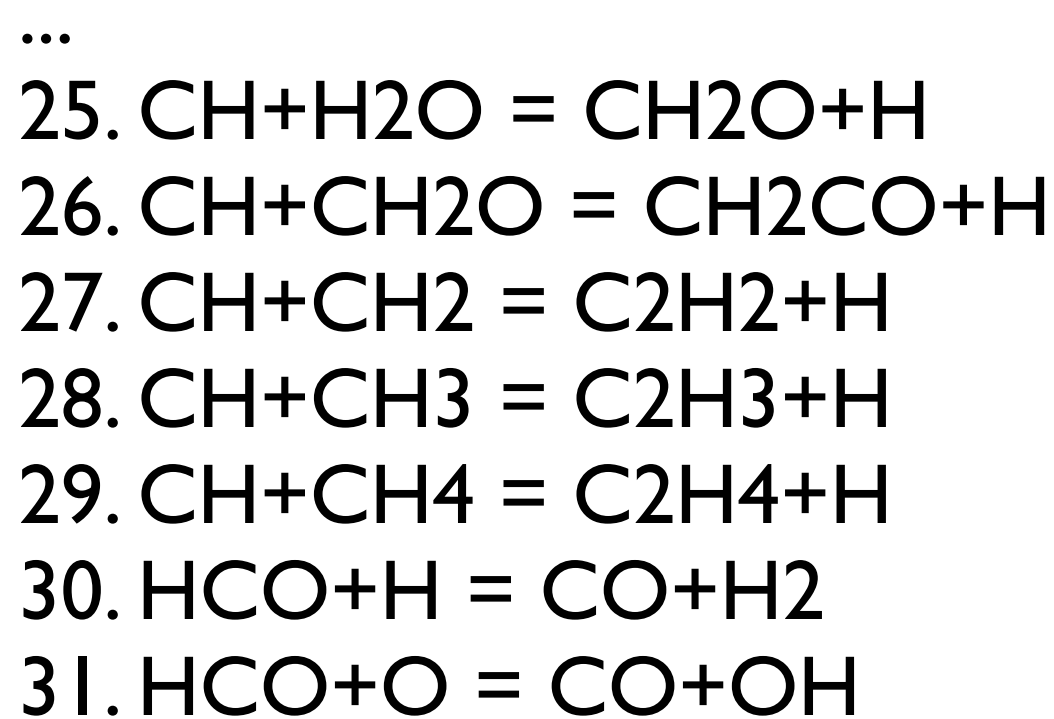
**$n^{\text{th}}$  reaction rate:** 
$$\dot{\omega}_n = \prod_{j \in A} \left( \frac{\rho Y_j}{W_j} \right)^{\mu_{j,n}} A_n T^{\nu_n} \exp(-T_{A,n}/T)$$

How is obtained  $Y_j$ ?

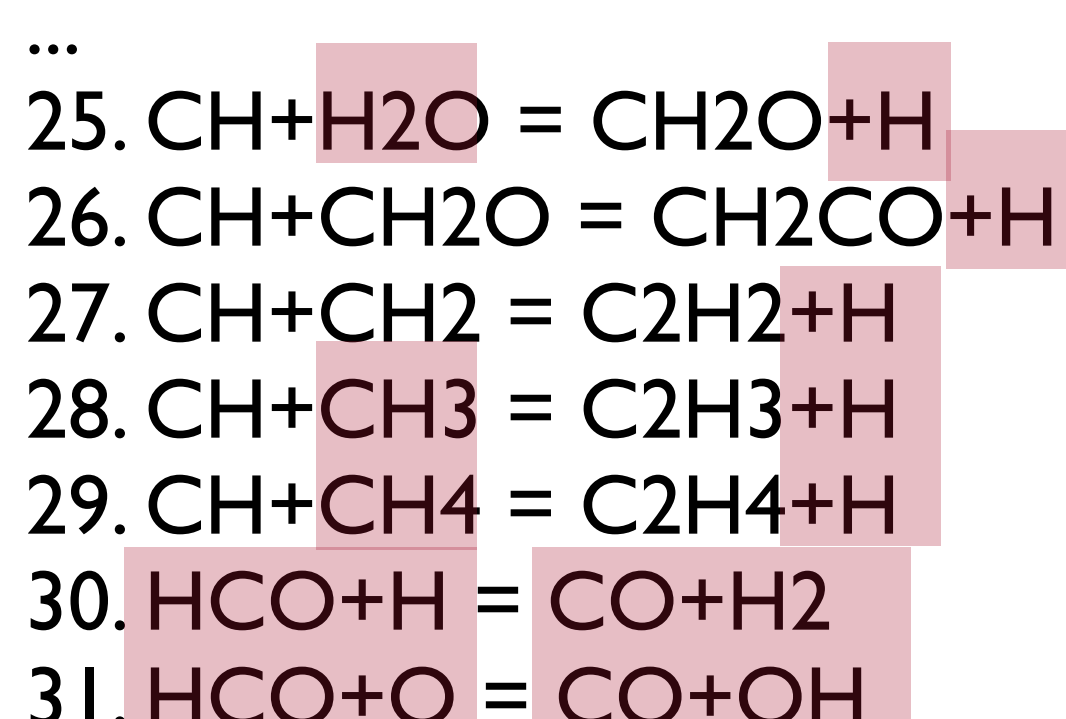
$$\left\{ \begin{array}{l} \text{Transported species: } Y_j \\ \text{Tabulated species: } Y_j = Y_j^{\max}(\phi) \times Y_j^+(Y_{c,j}^+(\phi)) \end{array} \right.$$

## APPLICATION:

1. The whole kinetic mechanism is loaded



2. Identification of transported species.



3. Mass fraction of tabulated species: S2FT

