

$m_{i_,j_ \rightarrow k_} [Z_] := \text{Module} [\{x, y, z\},$
 $Z // N_{w_i} c_{j \rightarrow x} // N_{w_x} u_{j \rightarrow y} // \text{ReplaceAll} [\{c_{x|y} \rightarrow c_x, w_j \rightarrow w_y\}] //$
 $N_{u_i} c_{x \rightarrow x} // \text{ReplaceAll} [z_{-i|j|x|y} \rightarrow z_k] // \text{CF}]$