generate_equations()
    Equation equation_set[] ← all equations in TecML;
    Equation equation_set2[] ← null;
    int equ2_count ← 0;
    for i ← 1 to length[equation_set] do
        equation_set[i] ← replace_v(equation_set[i]);
        if equation_set[i] includes Φ then
            for j ← 1 to Nx do
                equation_set2[equ2_count++] ← replace_sj(equation_set[i], j);
            end
        else if equation_set[i] includes Π then
            for j ← 1 to Ny do
                equation_set2[equ2_count++] ← replace_d(equation_set[i], j);
            end
        else
            for j ← 1 to Nx do
                equation_set2[equ2_count++] ← replace_f(equation_set[i], j);
            end
        end
    end
    for i ← 1 to length[equation_set2] do
        if equation_set2[i] includes f then
            for j ← 1 toNx do
                equation_set2[i] ← replace_f(equation_set2[i], j);
            end
        else if equation_set2[i] includes g then
            for j ← 1 to Ny do
                equation_set2[i] ← replace_g(equation_set2[i], j);
            end
        end
    end
    return equation_set2;
}

replace_v(Equation equ) {
    for i ← 0 to Nξ do
        replace all ξ_i with x_i in equ;
        replace all κ_i with k_i in equ;
        replace all ι_i with y_i in equ;
    end
    replace all ζ with z in equ;
    replace all δ with d in equ;
    return equ;
}

replace_sj(Equation equ, j) {
    lhs ← getLHS(equ);
    rhs ← getRHS(equ);
    replace all k_i with k_i,j in lhs;
    replace all y_i with y_i,j in lhs;
    replace all Φ with φ_j in rhs;
    replace all Π with γ_j in rhs;
    equ ← makeEquation(lhs, rhs);
    return equ;
}

replace_d(Equation equ, j) {
    replace all x_i with x_i,j in equ;
    replace all k_i with k_i,j in equ;
    return equ;
}

replace_f(Equation equ, j) {
    lhs ← getLHS(equ);
    rhs ← getRHS(equ);
    replace φ_j(x_k, y_l, t_m, z) with f_j(x, y, t, m, z) in rhs;
    for i ← 1 to Nx do
        replace all x_i with x_k,i in rhs;
    end
    for i ← 1 to Ny do
        replace all y_i with y_l,i in rhs;
    end
    equ ← makeEquation(lhs, rhs);
    return equ;
}

replace_g(Equation equ, j) {
    lhs ← getLHS(equ);
    rhs ← getRHS(equ);
    replace γ_j(x_k, y_l, t_m, z) with g_j(x, y, t, m, z) in rhs;
    for i ← 1 to Nx do
        replace all x_i with x_k,i in rhs;
    end
    for i ← 1 to Ny do
        replace all y_i with y_l,i in rhs;
    end
    equ ← makeEquation(lhs, rhs);
    return equ;
}