MV1 = (MultivariableAlexander[#, Program -> "MVA1"] &)
MV2 = (MultivariableAlexander[#, Program -> "MVA2"] &)

test1[_,_] := {
    mv = MV1[_, _]; mv2 = First[MV2[_, _]]; Or @@ Map[
        {mv1 = mv /. t[i_] -> t[#[[i]]]; Head[Expand[Simplify[mv2 / mv1]]] =!= Plus} &, Permutations[Range[Length[Skeleton[_, _]]]]
    ]
}
Print[# -> test1[#]] &/@ AllLinks[9];

KnotTheory::loading:
  Loading precomputed data in PD4Links.

KnotTheory::credits:
  Vogel's algorithm was implemented by Dan Carney in the summer of 2005 at the University of Toronto.

KnotTheory::credits:
  The multivariable Alexander program "MVA1" was written by Dan Carney at the University of Toronto in the summer of 2005.

Link[9, Alternating, 1] -> True
Link[9, Alternating, 2] -> True
Link[9, Alternating, 3] -> True
Link[9, Alternating, 4] -> True
Link[9, Alternating, 5] -> True
Link[9, Alternating, 6] -> True
Link[9, Alternating, 7] -> True
Link[9, Alternating, 8] -> True
Link[9, Alternating, 9] -> True
Link[9, Alternating, 10] -> True
Link[9, Alternating, 11] -> True
Link[9, Alternating, 12] -> True
Link[9, Alternating, 13] -> True
Link[9, Alternating, 14] -> True
Link[9, Alternating, 15] -> True
Link[9, Alternating, 16] -> True
Link[9, Alternating, 17] -> True
Link[9, Alternating, 18] -> True
Link[9, Alternating, 19] -> True
Link[9, Alternating, 20] -> True
Link[9, Alternating, 21] -> True
Link[9, Alternating, 22] → True
Link[9, Alternating, 23] → True
Link[9, Alternating, 24] → True
Link[9, Alternating, 25] → True
Link[9, Alternating, 26] → True
Link[9, Alternating, 27] → True
Link[9, Alternating, 28] → True
Link[9, Alternating, 29] → True
Link[9, Alternating, 30] → True
Link[9, Alternating, 31] → True
Link[9, Alternating, 32] → True
Link[9, Alternating, 33] → True
Link[9, Alternating, 34] → True
Link[9, Alternating, 35] → True
Link[9, Alternating, 36] → True
Link[9, Alternating, 37] → True
Link[9, Alternating, 38] → True
Link[9, Alternating, 39] → True
Link[9, Alternating, 40] → True
Link[9, Alternating, 41] → True
Link[9, Alternating, 42] → True
Link[9, Alternating, 43] → True
Link[9, Alternating, 44] → True
Link[9, Alternating, 45] → True
Link[9, Alternating, 46] → True
Link[9, Alternating, 47] → True
Link[9, Alternating, 48] → True
Link[9, Alternating, 49] → True
Link[9, Alternating, 50] → True
Link[9, Alternating, 51] → True
Link[9, Alternating, 52] → True
Link[9, Alternating, 53] → True
Link[9, Alternating, 54] → True
Link[9, Alternating, 55] → True
Link[9, NonAlternating, 1] → True
Link[9, NonAlternating, 2] \rightarrow True
Link[9, NonAlternating, 3] \rightarrow True
Link[9, NonAlternating, 4] \rightarrow True
Link[9, NonAlternating, 5] \rightarrow True
Link[9, NonAlternating, 6] \rightarrow True
Link[9, NonAlternating, 7] \rightarrow True
Link[9, NonAlternating, 8] \rightarrow True
Link[9, NonAlternating, 9] \rightarrow True
Link[9, NonAlternating, 10] \rightarrow True
Link[9, NonAlternating, 11] \rightarrow True
Link[9, NonAlternating, 12] \rightarrow True
Link[9, NonAlternating, 13] \rightarrow True
Link[9, NonAlternating, 14] \rightarrow True
Link[9, NonAlternating, 15] \rightarrow True
Link[9, NonAlternating, 16] \rightarrow True
Link[9, NonAlternating, 17] \rightarrow True
Link[9, NonAlternating, 18] \rightarrow True
Link[9, NonAlternating, 19] \rightarrow True
Link[9, NonAlternating, 20] \rightarrow True
Link[9, NonAlternating, 21] \rightarrow True
Link[9, NonAlternating, 22] \rightarrow True
Link[9, NonAlternating, 23] \rightarrow True
Link[9, NonAlternating, 24] \rightarrow True
Link[9, NonAlternating, 25] \rightarrow True
Link[9, NonAlternating, 26] \rightarrow True

First::normal : Nonatomic expression expected at position 1 in First[0]. \[\]

Power::infy : Infinite expression 1 0 encountered. \[\]

Power::infy : Infinite expression 1 0 encountered. \[\]

Power::infy : Infinite expression 1 0 encountered. \[\]

General::stop : Further output of Power::infy will be suppressed during this calculation. \[\]

Link[9, NonAlternating, 27] \rightarrow True
Link[9, NonAlternating, 28] \rightarrow True
\{(MV1[Link[9, NonAlternating, 27]][t], MV2[Link[9, NonAlternating, 27]][t])
   \{0, 0\}

Flip[X[i_, j_, k_, l_]] := If[1 = j + 1 || j - 1 > 1, X[j, k, l, i], X[l, i, j, k]];
VCube[pd_, l_List] := Module[
   {f},
   Expand[pd*Times @@ ((1 - f[[#]]) & /@ l)] // . pd1_PD * f[i_] :> MapAt[Flip, pd1, i]
   ]
Series[VCube[PD[#], {1, 2, 7}]/. pd_PD :> Jones[PD][E^x], {x, 0, 3}] & /@ AllLinks[8]
{- 9 x^3 + O[x]^4, -12 x^3 + O[x]^4, 12 x^3 + O[x]^4, -12 x^3 + O[x]^4, 12 x^3 + O[x]^4, 12 x^3 + O[x]^4,
3 x^3 + O[x]^4, -15 x^3 + O[x]^4, 0 [x]^4, 12 x^3 + O[x]^4, 15 x^3 + O[x]^4, 12 x^3 + O[x]^4,
12 x^3 + O[x]^4, 15 x^3 + O[x]^4, -18 x^3 + O[x]^4, -18 x^3 + O[x]^4, -18 x^3 + O[x]^4, 18 x^3 + O[x]^4,
18 x^3 + O[x]^4, -24 x^3 + O[x]^4, 36 x^3 + O[x]^4, 9 x^3 + O[x]^4, 9 x^3 + O[x]^4, -18 x^3 + O[x]^4,
-18 x^3 + O[x]^4, -18 x^3 + O[x]^4, -24 x^3 + O[x]^4, -36 x^3 + O[x]^4, -36 x^3 + O[x]^4}
Print[\{\{\{\}
   Series[VCube[PD[#], {1, 2, 7}]/. pd_PD :> MV2[PD][t]/. t[i_] :> E^x[h x[i]],
   {h, 0, 2}]] & /@ AllLinks[8];
Link[8, Alternating, 1] \to - x[2]^2 h^2 + O[h]^3
Link[8, Alternating, 9] \to O[h]^3
Link[8, Alternating, 15] \to O[h]^3
Link[8, Alternating, 16] \rightarrow O[h]^3

Link[8, Alternating, 17] \rightarrow O[h]^3

Link[8, Alternating, 18] \rightarrow O[h]^3

Link[8, Alternating, 19] \rightarrow O[h]^3

Link[8, Alternating, 20] \rightarrow O[h]^3

Link[8, Alternating, 21] \rightarrow O[h]^3

Link[8, NonAlternating, 1] \rightarrow x[2]^2 h^2 + O[h]^3

Link[8, NonAlternating, 2] \rightarrow x[2]^2 h^2 + O[h]^3

Link[8, NonAlternating, 3] \rightarrow O[h]^3

Link[8, NonAlternating, 4] \rightarrow O[h]^3

Link[8, NonAlternating, 5] \rightarrow O[h]^3

Link[8, NonAlternating, 6] \rightarrow O[h]^3

Link[8, NonAlternating, 7] \rightarrow O[h]^3

Link[8, NonAlternating, 8] \rightarrow O[h]^3

Print[H \rightarrow Series[VCube[PD[H]], \{1, 2, 7\}]] /. \text{pd}_\text{PD} \mapsto \text{MV2[pd][t]} /. t[i_] \rightarrow E^\text{h x[i]}, \{h, 0, 2\}] \& @\text{AllLinks}[9];

Print[H \rightarrow Series[VCube[PD[H]], \{1, 2, 7, 8\}]] /. \text{pd}_\text{PD} \mapsto \text{MV2[pd][t]} /. t[i_] \rightarrow E^\text{h x[i]}, \{h, 0, 2\}] \& @\text{AllLinks}[9];

Print[H \rightarrow Series[VCube[PD[H]], \{1, 2, 5, 7, 9\}]] /. \text{pd}_\text{PD} \mapsto \text{MV2[pd][t]} /. t[i_] \rightarrow E^\text{h x[i]}, \{h, 0, 3\}] \& @\text{AllLinks}[11];