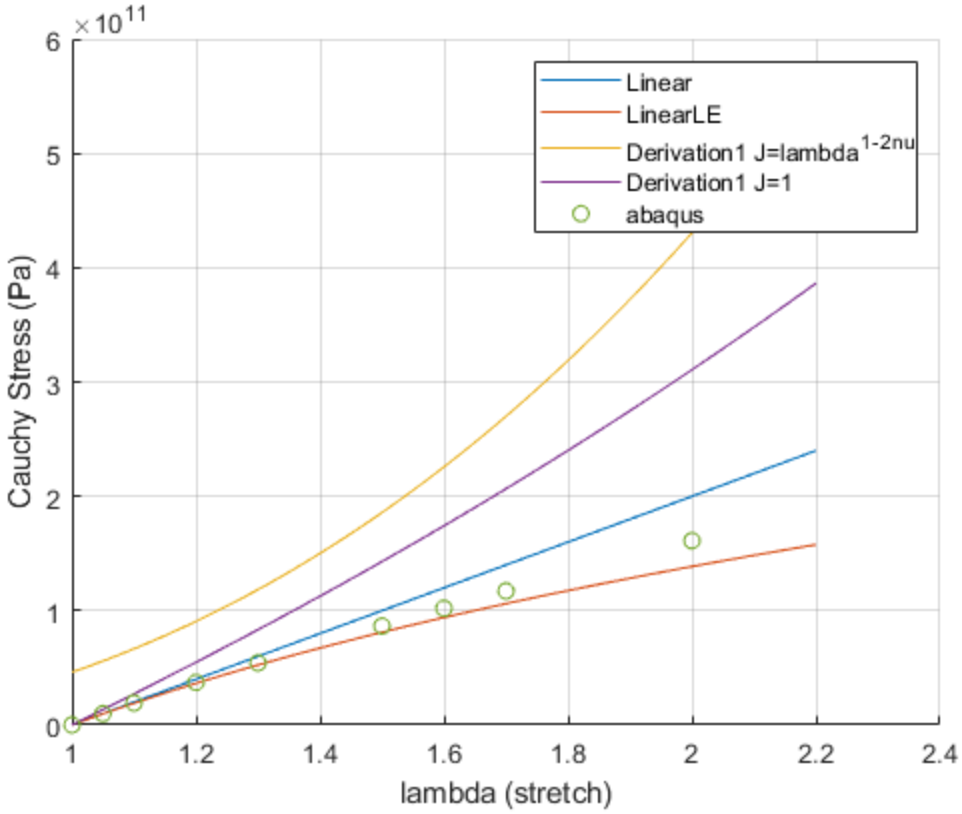
```
%Analytical Truss

mu = 76.92e9; lam = 115.4e9;
nu = lam/(2*(lam+mu)); Kap = (3*lam+2*mu)/3; E = mu*(3*lam+2*mu)/(lam
+mu);

%Abaqus NeoHooke Constants
C10 = mu/2; D1 = 2/Kap;

L = 1;
l = [1:0.01:2.2];

lambda = l./L;
epsilon = log(lambda);
J      = lambda.^(1-2*nu);


Linear = (lambda -1)*E;
LinearLE = (log(lambda)*E);
Derivation1 = ((1./J).*(1-2.*nu).*lambda.^((2.*(1-
nu)))).*(lam.*log(J)-mu) + mu.*lambda.^3./J;
Derivation1J1 = lam.*log(lambda)+mu.*(lambda.^2 - 1);

Ablam = [1 1.05 1.1 1.2 1.3 1.5 1.6 1.7 2];
Absig = [0 9.79115E+09 19.2131E+09   37.1786E+09 54.2475E+09  86.5399E
+09 102.027E+09   117.187E+09  161.202E+09];

figure();
hold on; grid on;
plot(lambda, Linear, 'DisplayName','Linear');
plot(lambda, LinearLE, 'DisplayName','LinearLE');
plot(lambda, Derivation1, 'DisplayName','Derivation1 J=lambda^1^-
^2^n^u');
plot(lambda, Derivation1J1, 'DisplayName','Derivation1 J=1');
plot(Ablam, Absig, 'o', 'DisplayName', 'abaqus');
legend('show');
ylabel("Cauchy Stress (Pa)");
xlabel("lambda (stretch)");
```



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