

Pensieve Header: Simplifying the Exact Solution.

```
SetDirectory[
```

```
"C:\\drorbn\\AcademicPensieve\\2012-05\\beta5.1"];
```

```
<< betaCalculus.m
```

```
Unprotect[C];
```

```
 $\beta$ Simplify = FullSimplify;
```

```
{V = B[ $\omega$ [c1, c2],  $\alpha$ [c1, c2] t[1] h[1] +  $\beta$ [c1, c2] t[1] h[2] +  
 $\gamma$ [c1, c2] t[2] h[1] +  $\delta$ [c1, c2] t[2] h[2]],
```

```
C = B[ $\kappa$ [c1], 0]}
```

```
{ (  $\omega$ [c1, c2] h[1] h[2]  
t[1]  $\alpha$ [c1, c2]  $\beta$ [c1, c2]  
t[2]  $\gamma$ [c1, c2]  $\delta$ [c1, c2] ) , (  $\kappa$ [c1]  
t[1] ) }
```

$$v[x_] := \sqrt{\frac{\text{Sinh}\left[\frac{x}{2}\right]}{x/2}};$$

$$\kappa[x_] := v[x]^{-1/2};$$

$$\omega[c_1, c_2] = \frac{\kappa[c_1 + c_2]}{\kappa[c_1] \kappa[c_2]};$$

$$\gamma[c_1, c_2] = \frac{v[c_2] - v[c_1] v[c_1 + c_2]}{(c_1 + c_2) v[c_1] v[c_1 + c_2]};$$

$$\delta[c_1, c_2] = \frac{e^{\frac{c_1}{2}}}{c_2} - \frac{v[c_1 + c_2] e^{c_1 + c_2} v[c_1] c_1}{(-1 + e^{c_1 + c_2}) v[c_2] c_2} - \frac{1}{c_1 + c_2};$$

$$\alpha[c_1, c_2] = \frac{-c_2}{c_1} \gamma[c_1, c_2];$$

$$\beta[c_1, c_2] = \frac{1}{c_1} (e^{\frac{c_1}{2}} - c_2 \delta[c_1, c_2] - 1);$$

```
{V1, C1, sol1} = Get["ExactSolution-120528.m"];
```

```
FullSimplify[V == V1 && C == C1]
```

```
True
```