

Rules for integrands of the form $(c + d x)^m (a + b \operatorname{Sech}[e + f x])^n$

N: $\int u^m \operatorname{Sech}[v]^n dx$ when $u = c + d x \wedge v = a + b x$

Derivation: Algebraic normalization

Rule: If $u = c + d x \wedge v = a + b x$, then

$$\int u^m \operatorname{Sech}[v]^n dx \rightarrow \int (c + d x)^m \operatorname{Sech}[a + b x]^n dx$$

Program code:

```
Int[u_^m_.*Sech[v_]^n_.,x_Symbol] :=  
  Int[ExpandToSum[u,x]^m*Sech[ExpandToSum[v,x]]^n,x] /;  
FreeQ[{m,n},x] && LinearQ[{u,v},x] && Not[LinearMatchQ[{u,v},x]]
```

```
Int[u_^m_.*Csch[v_]^n_.,x_Symbol] :=  
  Int[ExpandToSum[u,x]^m*Csch[ExpandToSum[v,x]]^n,x] /;  
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```