

Exercise 6.3 Evaluate with undefined components

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1  {\theta, \varphi}::Coordinate.
2  {a,b,c,d,e,f,g,h#}::Indices(values={\theta, \varphi}, position=independent).
3
4  bah := {V_{\theta} = \varphi, V_{\varphi} = \sin(\theta)}. # cdb(ex-0603.100,bah)
5  foo := U_{a} V_{b}. # cdb(ex-0603.101,foo)
6
7  evaluate (foo, bah) # cdb(ex-0603.102,foo)

```

$$[V_{\theta} = \varphi, V_{\varphi} = \sin \theta] \quad (\text{ex-0603.100})$$

$$U_a V_b \quad (\text{ex-0603.101})$$

$$\square_{ab} \begin{cases} \square_{\theta\theta} = \varphi U_{\theta} \\ \square_{\theta\varphi} = U_{\theta} \sin \theta \\ \square_{\varphi\theta} = \varphi U_{\varphi} \\ \square_{\varphi\varphi} = U_{\varphi} \sin \theta \end{cases} \quad (\text{ex-0603.102})$$