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\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\forall x\forall y(x(y+1)=xy+x)\ \forall x\forall y(x+(y+1)=(x+y)+1)\ (t_1(t_2+v)=t_1t_2+t_1v)\vdash (k(v+(l+1)=k(l+1)+kv)\ A(u)}{\forall x\forall y(x(y+1)=xy+x)\ \forall x\forall y(x+(y+1)=(x+y)+1)\ (t_1(t_2+v)=t_1t_2+t_1v)\vdash (k((v+l)+1)=k(l+1)+kv)\ A(u)}}{\forall x\forall y(x(y+1)=xy+x)\ \forall x\forall y(x+(y+1)=(x+y)+1)\ (t_1(t_2+v)=t_1t_2+t_1v)\vdash (k((l+v)+1)=kl+kv+k)\ A(u)}}{\forall x\forall y(x(y+1)=xy+x)\ \forall x\forall y(x+(y+1)=(x+y)+1)\ (t_1(t_2+v)=t_1t_2+t_1v)\vdash (k(l+(v+1))=kl+k(v+1))\ A(u)}\quad \vdash \forall x\forall y(x(y+1)=xy+x)\ \forall x\forall y(x+(y+1)=(x+y)+1}{t_1(t_2+v)=t_1t_2+t_1v\vdash (k(l+(v+1))=kl+k(v+1))\ A(u)}\,\text{cut}}{\forall x\forall y(x(y+v)=xy+xv)\vdash (k(l+(v+1))=kl+k(v+1))\ A(u)}\,(\forall\vdash)}{\forall x\forall y(x(y+v)=xy+xv)\vdash \forall x\forall y(x(y+(v+1))=xy+x(v+1))\ A(u)}\,(\vdash\forall)}{A(v)\vdash A(v+1)\ A(u)}\,\text{def}}{\vdash (A(v)\to A(v+1))\ A(u)}\,(\vdash\to)}{\vdash \forall z(A(z)\to A(z+1))\ A(u)}\,(\vdash\forall)\quad \dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{t=t\vdash vw=vw\ A(u)}{\forall x(x=x)\vdash (vw=vw)\ A(u)}\quad \forall x(x+0=x)\ \forall x(x\cdot 0=0)\vdash \forall x(x=x)}{\forall x(x+0=x)\ \forall x(x\cdot 0=0)\vdash (vw=vw)\ A(u)}\,\text{cut}}{\forall x(x+0=x)\ \forall x(x\cdot 0=0)\vdash (vw=vw+0)\ A(u)}}{\forall x(x+0=x)\ \forall x(x\cdot 0=0)\vdash (v(w+0)=vw+v\cdot 0)\ A(u)}\quad \vdash \forall x(x+0=x)\ \forall x(x\cdot 0=0)}{\vdash (v(w+0)=vw+v\cdot 0)\ A(u)}\,\text{cut}}{\vdash \forall x\forall y(x(y+0)=xy+x\cdot 0)\ A(u)}\,(\vdash\forall)}{\vdash A(0)\ A(u)}\,\text{def}}{\vdash (A(0)\ \&\ \forall z(A(z)\to A(z+1)))\ A(u)}\,(\vdash\&)\quad \dfrac{A(t)\vdash A(u)}{\forall zA(z)\vdash A(u)}\,(\forall\vdash)}{A(0)\ \&\ \forall z(A(z)\to A(z+1))\to\forall zA(z)\vdash A(u)}\,(\to\vdash)}{A(0)\ \&\ \forall z(A(z)\to A(z+1))\to\forall zA(z)\vdash \forall zA(z)}\,(\vdash\forall)
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