Konig[11,40]

Konig(k)
$\equiv_{\text{def}}$ $\forall tree{:}((n{:}\mathbb{N} \times (\{0..n^-\}\to\{0..k^-\}))\to \mathbb{B})$.
$(\forall i, j{:}\mathbb{N}.\ (i \le j) \Rightarrow (\forall x{:}(\{0..j^-\}\to\{0..k^-\}).\ (\uparrow(tree(<j, x>))) \Rightarrow (\uparrow(tree(<i, x>)))))$
$\Rightarrow (\neg(\exists b{:}\mathbb{N}.\ (\forall x{:}(\{0..b^-\}\to\{0..k^-\}).\ \neg(\uparrow(tree(<b, x>))))))$
$\Rightarrow (\exists s{:}\mathbb{N}\to\{0..k^-\}.\ (\forall n{:}\mathbb{N}.\ \uparrow(tree(<n, s>))))$

clarification:

Konig(k)
$\equiv_{\text{def}}$ $\forall tree{:}((n{:}\mathbb{N} \times (\{0..n^-\}\to\{0..k^-\}))\to \mathbb{B})$.
$(\forall i{:}\mathbb{N}, j{:}\mathbb{N}.$
$(i \le j) \Rightarrow (\forall x{:}(\{0..j^-\}\to\{0..k^-\}).\ (\uparrow(tree(<j, x>))) \Rightarrow (\uparrow(tree(<i, x>)))))$
$\Rightarrow (\neg(\exists b{:}\mathbb{N}.\ (\forall x{:}(\{0..b^-\}\to\{0..k^-\}).\ \neg(\uparrow(tree(<b, x>))))))$
$\Rightarrow (\exists s{:}\mathbb{N}\to\{0..k^-\}.\ (\forall n{:}\mathbb{N}.\ \uparrow(tree(<n, s>))))$

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http://www.nuprl.org/FDLcontent/p0_963683_/p92_165941_{Konig}.html