Bucanon Syntax

www.bucephalus.org
September 6, 2002

The syntax of formulas

<table>
<tr><th></th><th>in LaTeX notation</th><th>in Bucanon notation</th></tr>
<tr><td>formula</td><td></td><td></td></tr>
<tr><td>theory formula τ</td><td></td><td></td></tr>
<tr><td>atom α</td><td>non-empty string of letters ($A,\ldots,Z,a,\ldots,z$), digits ($0,1,\ldots,9$), and the understroke (_)</td><td>non-empty string of letters (A,...,Z,a,...,z), digits (0,1,...,9), and the understroke (_)</td></tr>
<tr><td>boolean junction</td><td></td><td></td></tr>
<tr><td>bit value</td><td></td><td></td></tr>
<tr><td>zero bit</td><td>?</td><td>?</td></tr>
<tr><td>unit bit</td><td>!</td><td>!</td></tr>
<tr><td>negation</td><td>$\neg\tau$</td><td>'τ
-τ</td></tr>
<tr><td>conjunction</td><td>$[\wedge]$ or $[\wedge\tau]$ or $[\tau_1 \wedge \cdots \wedge \tau_n]$ with $n \geq 2$</td><td>[,] or [,τ] or [τ_1,...,τ_n] with $n \geq 2$
[*] or [*τ] or [τ_1*...*τ_n] with $n \geq 2$</td></tr>
<tr><td>disjunction</td><td>$[\vee]$ or $[\vee\tau]$ or $[\tau_1 \vee \cdots \vee \tau_n]$ with $n \geq 2$</td><td>[;] or [;τ] or [τ_1;...;τ_n] with $n \geq 2$
[+] or [+τ] or [τ_1+...+τ_n] with $n \geq 2$</td></tr>
<tr><td>subjunction</td><td>$[\tau_1 \rightarrow \tau_2]$</td><td>[$\tau_1$ -> τ_2]</td></tr>
<tr><td>equijunction</td><td>$[\tau_1 \leftrightarrow \tau_2]$</td><td>[$\tau_1$ <-> τ_2]</td></tr>
<tr><td>boolean relation</td><td></td><td></td></tr>
<tr><td>subvalence</td><td>$[\tau_1 \Rightarrow \tau_2]$</td><td>[$\tau_1$ => τ_2]</td></tr>
<tr><td>equivalence</td><td>$[\tau_1 \Leftrightarrow \tau_2]$</td><td>[$\tau_1$ <=> τ_2]</td></tr>
<tr><td>expansion or reduction</td><td></td><td></td></tr>
<tr><td>expansion</td><td>$[\tau \parallel \lambda]$ or $[\tau \parallel \alpha_1\ \alpha_2\ \ldots\ \alpha_n]$ with $n \geq 0$</td><td>[τ || λ] or [τ || $\alpha_1\ \alpha_2\ \ldots\ \alpha_n$] with $n \geq 0$</td></tr>
<tr><td>infimum reduction</td><td>$[\tau \Uparrow \lambda]$ or $[\tau \Uparrow \alpha_1\ \alpha_2\ \ldots\ \alpha_n]$ with $n \geq 0$</td><td>[τ <| λ] or [τ <| $\alpha_1\ \alpha_2\ \ldots\ \alpha_n$] with $n \geq 0$</td></tr>
<tr><td>supremum reduction</td><td>$[\tau \Downarrow \lambda]$ or $[\tau \Downarrow \alpha_1\ \alpha_2\ \ldots\ \alpha_n]$ with $n \geq 0$</td><td>[τ |> λ] or [τ |> $\alpha_1\ \alpha_2\ \ldots\ \alpha_n$] with $n \geq 0$</td></tr>
<tr><td>standard reduction</td><td>@|τ</td><td>@|τ</td></tr>
<tr><td>atom list formula λ</td><td></td><td></td></tr>
<tr><td>atom list</td><td>$[\alpha_1\ \alpha_2\ \ldots\ \alpha_n]$ with $n \geq 0$</td><td>[$\alpha_1\ \alpha_2\ \ldots\ \alpha_n$] with $n \geq 0$</td></tr>
<tr><td>atom list function</td><td>@τ</td><td>@τ</td></tr>
<tr><td>negative atom list function</td><td>$-$@τ</td><td>-@τ</td></tr>
<tr><td>positive atom list function</td><td>$+$@τ</td><td>+@τ</td></tr>
</table>

The syntax of boolean formulas (a subset of theory formulas)

<table>
<tr><th></th><th>in LaTeX notation</th><th>in Bucanon notation</th></tr>
<tr><td>boolean formula φ</td><td></td><td></td></tr>
<tr><td>atom α</td><td>non-empty string of letters ($A,\ldots,Z,a,\ldots,z$), digits ($0,1,\ldots,9$), and the understroke (_)</td><td>non-empty string of letters (A,...,Z,a,...,z), digits (0,1,...,9), and the understroke (_)</td></tr>
<tr><td>boolean junction</td><td></td><td></td></tr>
<tr><td>bit value</td><td></td><td></td></tr>
<tr><td>zero bit</td><td>?</td><td>?</td></tr>
<tr><td>unit bit</td><td>!</td><td>!</td></tr>
<tr><td>negation</td><td>$\neg\varphi$</td><td>'φ
-φ</td></tr>
<tr><td>conjunction</td><td>$[\wedge]$ or $[\wedge\varphi]$ or $[\varphi_1 \wedge \cdots \wedge \varphi_n]$ with $n \geq 2$</td><td>[,] or [,φ] or [φ_1,...,φ_n] with $n \geq 2$
[*] or [*φ] or [φ_1*...*φ_n] with $n \geq 2$</td></tr>
<tr><td>disjunction</td><td>$[\vee]$ or $[\vee\varphi]$ or $[\varphi_1 \vee \cdots \vee \varphi_n]$ with $n \geq 2$</td><td>[;] or [;φ] or [φ_1;...;φ_n] with $n \geq 2$
[+] or [+φ] or [φ_1+...+φ_n] with $n \geq 2$</td></tr>
<tr><td>subjunction</td><td>$[\varphi_1 \rightarrow \varphi_2]$</td><td>[$\varphi_1$ -> φ_2]</td></tr>
<tr><td>equijunction</td><td>$[\varphi_1 \leftrightarrow \varphi_2]$</td><td>[$\varphi_1$ <-> φ_2]</td></tr>
</table>