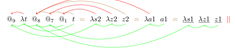
Notation:
|| denotes pause;
← denotes substitution;
→ bounds lambdas with corresponding arguments;
→ are pointers to last unfinished application within one run (between two neighbor '——');
⇒ are pointers to last unfinished application from one run to another one (pointer across some '——');
⇢ are binder pointers (invariant: for (BVar) it points to the corresponding (Lam) that bounds it; otherwise it point to the parent with respect to tree structure);
elements of traversal that will appear in normalized term are underlined.

Example p zero

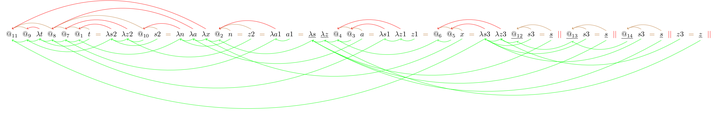
Input term: (λt.((((t(θ$_1$(λn.λa.λr.n(θ$_2$(λs.λz.(a(θ$_3$s)(θ$_4$((r(θ$_5$s)(θ$_6$z))))))(θ$_7$(λa1.a1)))(θ$_8$(λs1.λz1.z1)))))θ$_9$(λs2.λz2.z2))



Normal form: λs1.λz1.z1

Example p one three

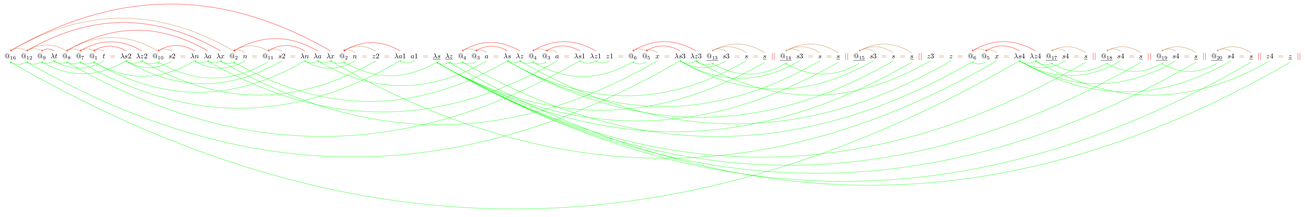
Input term: ((λt.(((t(θ$_{1}$(λn.λa.λx.nθ$_{2}$(λs.λz.(sθ$_{9}$s)θ$_{4}$((xθ$_{5}$s)θ$_{6}$z))))θ$_{7}$(λo1.o1))θ$_{8}$(λs1.λz1.z1)))θ$_{9}$(λs2.λz2.sθ$_{10}$z2))θ$_{11}$(λs3.λz3.s3θ$_{12}$(s3θ$_{13}$(s3θ$_{14}$z3))))



Normal form: λs.λz.sθ(sθ(sθ$_{2}$))

Example p two three four

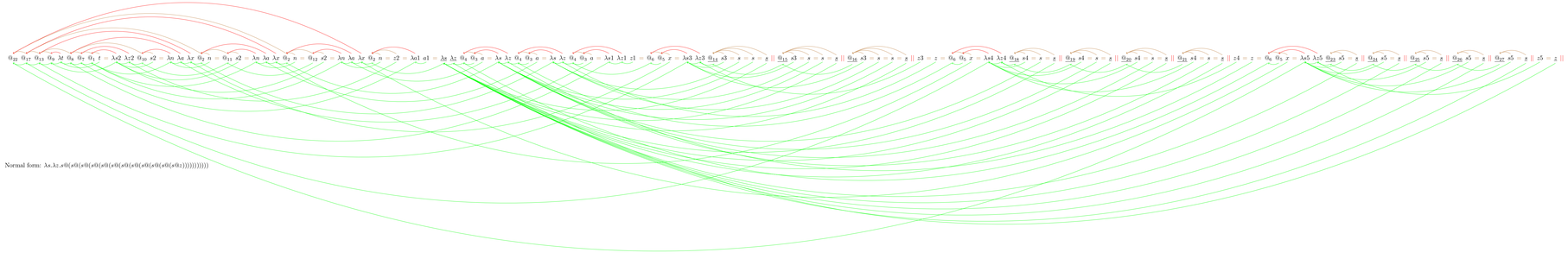
Input term: (((λf.(((θ$_{1}$(λn.λo.λr.n θ$_{2}$(λs.λz.(o θ$_{3}$s)θ$_{4}$((r θ$_{5}$s)θ$_{6}$z))))θ$_{7}$(λa1.a1))θ$_{8}$(λv1.λz1.z1)))θ$_{9}$(λx2.λz2.x2θ$_{10}$(x2θ$_{11}$z2)))θ$_{12}$(λv3.λz3.s30$_{13}$(s30$_{14}$(s30$_{15}$z3))))θ$_{16}$(λs4.λz4.s40$_{17}$(s40$_{18}$(s40$_{19}$(s40$_{20}$z4)))))



Normal form: λs.λz.s0((s0((s0((s0((s0((s0(z)))))))))))

Example p three three four five

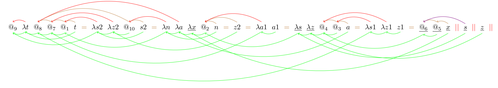
Input term: ((((λf.(((t0$_{1}$(λn.λa.λx.n0$_{2}$(λs.λz.(s0$_{3}$s)0$_{4}$((x0$_{5}$s)0$_{6}$)))0$_{7}$(λa1.a1))0$_{8}$(λa1.λz1.z1)))0$_{9}$(λx2.λz2.s20$_{10}$(s20$_{11}$(s20$_{12}$z2))))0$_{13}$(λs3.λz3.s30$_{14}$(s30$_{15}$(s30$_{16}$z3))))0$_{17}$(λs4.λz4.s40$_{18}$(s40$_{19}$(s40$_{20}$(s40$_{21}$z4))))))0$_{22}$(λs5.λz5.s50$_{23}$(s50$_{24}$(s50$_{25}$(s50$_{26}$(s50$_{27}$z5))))))



Normal form: λs.λz.s0((s0((s0((s0((s0((s0((s0((s0((s0((s0z)))))))))))))))))

Example p one

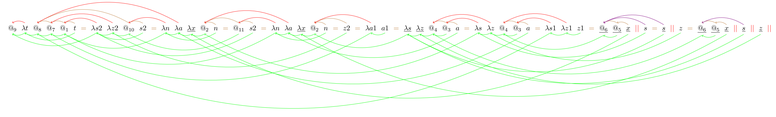
Input term: (λt.((((t0$_{1}$(λn.λa.λr.n0$_{2}$(λs.λz.(a0$_{3}$s)0$_{4}$((r0$_{5}$s)0$_{4}$z))))0$_{2}$(λa1.a1))0$_{6}$(λs1.λz1.z1)))0$_{6}$(λs2.λz2.s20$_{10}$z2)



Normal form: λr.λs.λz.(r0s)0z

Example p two

Input term: (λt.((((t0$_1$(λn.λa.λr.n0$_2$(λs.λz.(s0$_3$s)0$_4$((r0$_5$s)0$_6$z))))0$_7$(λa1.a1))0$_8$(λs1.λz1.z1)))0$_9$(λs2.λz2.s20$_{10}$(s20$_{11}$z2))



Normal form: λs.λz.λs.λz.(s0s)0((s0s)0z)