Analyzing rule sets with Kiabora: Correction

Note: Kiabora uses DLGP syntax. The set of rules \( \{ r(x, y) \land p(y, z) \rightarrow r(x, z), t(x, y) \rightarrow p(x, y) \} \) is written as follows (variables must begin with an uppercase letter).

\[
\begin{align*}
  r(X, Z) & : = r(X, Y), p(Y, Z). \\
  p(X, Z) & : = t(X, Y).
\end{align*}
\]

1. weakly acyclic and not full
   \( t(X, Y) : -p(X). \)

2. weakly acyclic and not aGRD
   \( r(X, Z) : -r(X, Y), r(Y, Z). \)

3. aGRD and not weakly acyclic
   \( r(X, Z), r(Z, W), r(W, X) : -r(X, Y), r(Y, X). \)

4. linear and sticky, with a non-empty set of marked variables
   \( t(X, Z), t(Y, Z) : -p(X, Y). \)

5. linear and not sticky
   \( t(X), t(Y) : -r(X, X, Y). \)

6. sticky, with a non-empty set of marked variables, and not linear
   \( t(X, Z), t(Y, Z) : -p(X, Y), r(Z). \)

7. disconnected
   \( t(Y) : -r(X). \)

8. guarded, frontier 1 and not linear
   \( t(X) : -r(X), p(X). \)

9. guarded and not frontier 1
   \( t(X, Y) : -r(X, Y). \)

10. sticky, with a non-empty set of marked variables, and not weakly acyclic
    \( r(X, Y) : -r(X, Z). \)
    \( r(Y, X) : -r(Z, X). \)
11. with a cycle of size at least three in the graph of rule dependencies

\[
\begin{align*}
q(X) &: -p(X) . \\
r(X) &: -q(X) . \\
p(X) &: -r(X) .
\end{align*}
\]

12. with a critical cycle of size at least three in the predicate graph

\[
\begin{align*}
p(Y,Z) &: -r(X,Y) . \\
q(X,Y) &: -p(X,Y) . \\
r(X,Y) &: -q(X,Y) .
\end{align*}
\]

13. a set of rules that is not known to be a fes or a fus but can be partitioned into a fes and a fus that are not independent but such that query answering can be done by chasing w.r.t. the fes then using UCQ-rewriting w.r.t. the fus

\[
\begin{align*}
p(Y,Y) &: -r(X,Y), p(X,X) . \\
p(Y,Z) &: -p(X,Y) .
\end{align*}
\]

14. a set of rules that can be partitioned into a fes and a fus but such that query answering cannot be done by chasing w.r.t. the fes then using UCQ-rewriting w.r.t. the fus

\[
\begin{align*}
r(Y,Z), a(Z) &: -r(X,Y) . \\
a(X) &: -r(X,Y), a(Y) .
\end{align*}
\]

15. a set that has none of the considered properties

\[
\begin{align*}
a(X,Y,Z,W) &: - r(X,Y), r(Y,H) . \\
r(X,Z) &: -a(X,Y,Z,W) . \\
r(Z,W) &: -a(X,Y,Z,W) . \\
r(W,X) &: -a(X,Y,Z,W) .
\end{align*}
\]