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

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