CS348 A1 Solution

1. $\{(aid, name) \mid AUTHOR(aid, name) \land$

$(\exists pubid1, pubid2, proid.(WROTE(aid, pubid1) \land WROTE(aid, pubid2) \land$

$pubid1 \neq pubid2 \land ARTICLE(pubid1, proid, -, -) \land ARTICLE(pubid2, proid, -, -) \land PROCEEDINGS(proid, -))) \land$

$(\neg \exists pubid1, pubid2, proid1, proid2.(WROTE(aid, pubid1) \land WROTE(aid, pubid2) \land$

$pubid1 \neq pubid2 \land ARTICLE(pubid1, proid1, -, -) \land ARTICLE(pubid2, proid2, -, -) \land$

$PROCEEDINGS(proid1, -) \land PROCEEDINGS(proid2, -) \land proid1 \neq proid2)\}$

OR EQUIVALENTLY

$\{(a, n) \mid AUTHOR(a, n) \land \exists p1, p2, j.WROTE(a, p1)$

$\land WROTE(a, p2) \land ARTICLE(p1, j, -) \land ARTICLE(p2, j, -) \land PROCEEDINGS(j,) \land p1 \neq p2 \land$

$\forall p, k.(WROTE(a, p) \land ARTICLE(p, k, -) \land PROCEEDINGS(k, -) \rightarrow j = k)$

2. $\{(ttl, yr) \mid \exists aid, pubid, jpid.AUTHOR(aid,' Doe') \land WROTE(aid, pubid) \land$

$PUBLICATION(pubid, ttl) \land$

$(BOOK(pubid, -, yr) \lor$

$(ARTICLE(pubid, jpid, -, -) \land (JOURNAL(jpid, -, -, yr) \lor PROCEEDINGS(jpid, yr))))\}$

3. $\{(aid) \mid (\exists b1, b2.WROTE(aid, b1) \land WROTE(aid, b2) \land BOOK(b1, -) \land BOOK(b2, -) \land b1 \neq b2)$

$\land (\exists c.(AUTHOR(c, -) \land$

$(\forall pubid.WROTE(aid, pubid) \land WROTE(c, pubid))))\}$

4. $\{(id, name) \mid \exists pubid, yr.WROTE(id, yr) \land AUTHOR(id, name) \land$

$(BOOK(id, -, yr) \lor (\exists jid.ARTICLE(pubid, jid, -, -) \land JOURNAL(jid, -, -, yr))) \land$

$\neg(BOOK(id, -, yr) \land (\exists jid.ARTICLE(pubid, jid, -, -) \land JOURNAL(jid, -, -, yr)))$

$(yr = 2015 \lor yr = 2016 \lor yr = 2017 \lor yr = 2018 \lor yr = 2019)\}$

5. $\{(pid1, pid2) \mid (\exists a.WROTE(a, pid1) \land WROTE(a, pid2)) \land$

$\neg \exists a.((WROTE(a, pid1) \land \neg WROTE(a, pid2)) \lor (WROTE(a, pid2) \land \neg WROTE(a, pid1)))\}$

6. $\forall pubid1, pubid2, s1, s2, e1, e2, jpid.ARTICLE(pubid1, jpid, s1, e1) \land ARTICLE(pubid2, jpid, s2, e2)$

$\land pubid1 \neq pubid2 \rightarrow (s1 > e2 \lor s2 > e1)$

7. $\forall pubid.JOURNAL - OR - PROCEEDINGS(pubid) \rightarrow \neg \exists aid.WROTE(aid, pubid)$