

Table 2. Competency questions and corresponding SPARQL queries

ID	Question	SPARQL query	Answers CQ?
CQ-1	Which persons were involved in the provenance of this object?	SELECT * WHERE { ?o a crm:E24_Physical_Human-Made_Thing . ?o crm:P49_has-former-or-current-keeper ?p. ?p rdfs:label ?lab}	Partially , if the intent is to find out actors involved in object biography as a formal keeper or owner
CQ-2	Which objects are collected by person A?	SELECT * WHERE { ?p a crm:E39_Actor . {?act crm:P29_custody_received_by ?p. ?act crm:P30_transferred_custody_of ?o} UNION {?act crm:P23_transferred_title_from ?p. ?act crm:P24_transferred_title_of ?o}}	Yes
CQ-3	Is there a relationship between person A and person B?	SELECT ?p1 ?p2 WHERE { ?p1 a crm:E39_Actor . ?p2 a crm:E39_Actor . ?act1 a crm:E7_Activity . ?act1 ?prop1 ?p1 . ?act1 ?prop2 ?p2 . FILTER (?p1 != ?p2)}	Partially , retrieves two persons involved through a shared activity with the same object.
CQ-4	Which objects were collected in this geographical location?	SELECT ?o ?p WHERE{ ?o a crm:E24_Physical_Human-Made_Thing . {?act crm:P30_transferred_custody_of ?o} UNION {?act crm:P24_transferred_title_of ?o} ?act crm:P9_consists_of ?sub . ?sub crm:P7_took_place_at ?p. }	Yes
CQ-5	Which objects were collected during this event?	SELECT ?e ?o WHERE {?e a crm:E5_Event . ?e crm:P9_consists_of ?act . ?act a crm:E7_Activity . ?s_Act crm:P9_consists_of ?act . ?s_Act ?prop ?o. ?o a crm:E24_Physical_Human-Made_Thing .}	Yes
CQ-6	Which objects were collected in this geographical location during this time period?	SELECT ?o ?p ?b.time ?e.time WHERE{ ?o a crm:E24_Physical_Human-Made_Thing . ?act crm:P9_consists_of ?sub . ?sub crm:P7_took_place_at ?p. ?sub crm:P4_has.time-span ?time . ?t crm:P82a_begin_of.the_begin ?b.time . ?t crm:P82b_end_of.the_end ?e.time. {?act crm:P30_transferred_custody_of ?o} UNION {?act crm:P24_transferred_title_of ?o}}	Yes
CQ-7	Which source states this statement?	SELECT ?s ?p ?o ?agentName WHERE { Graph ?g {?s ?p ?o .} {?g prov:wasDerivedFrom ?entity . ?entity prov:wasGeneratedBy ?act . ?act prov:wasAssociatedWith ?agent} UNION {?g prov:wasAttributedTo ?agent . } ?agent rdfs:label ?agentName .}	Yes
CQ-8	Who or which institution conducted this research?	SELECT ?r ?a1 ?a2 WHERE { ?r a prov:Activity . ?r prov:wasAssociatedWith ?a1 . OPTIONAL { ? prov:actedOnBehalfOf ?a2}}	Yes
CQ-9	Which is the latest version of the provenance research?	SELECT ?act ?date WHERE { Graph ?g {?s ?p ?o .} ?g prov:wasDerivedFrom ?entity . ?entity prov:wasGeneratedBy ?act . ?act prov:endedAtTime ?date . filter not exists { ?act prov:endedAtTime ?date1 filter (?date > ?date1) } } ORDER BY DESC(?date)	Yes , but need to filter first one