

Evaluation of the Federal Reserve Board (FRB) RDF Data Sets

Thomas Bosch¹, Benjamin Zapilko¹, Joachim Wackerow¹, and Kai Eckert²

¹ GESIS – Leibniz Institute for the Social Sciences, Germany
{firstname.lastname}@gesis.org,

² University of Mannheim, Germany
kai@informatik.uni-mannheim.de

Abstract. Evaluation of the Federal Reserve Board (FRB) RDF Data Sets

Keywords: RDF Validation, RDF Constraints, DDI-RDF Discovery Vocabulary, Disco, RDF Data Cube Vocabulary, Linked Data, Semantic Web

1 Data Model Consistency

	Constraints												
Data Sets													
	DATA-MODEL-CONSISTENCY-01	DATA-MODEL-CONSISTENCY-02	DATA-MODEL-CONSISTENCY-03	DATA-MODEL-CONSISTENCY-04	DATA-MODEL-CONSISTENCY-05	DATA-MODEL-CONSISTENCY-06	DATA-MODEL-CONSISTENCY-07	DATA-MODEL-CONSISTENCY-08	DATA-MODEL-CONSISTENCY-09	DATA-MODEL-CONSISTENCY-10 (!)	DATA-MODEL-CONSISTENCY-11		
http://frb.270a.info/sparql	✓	✓	✓	14372	16175814	(42)	✓	✓	(1)	✓	✓	-	✓

Table 1: Evaluation of <http://frb.270a.info/sparql>

Data Sets	Constraints										
	DATA-MODEL-CONSISTENCY-01	DATA-MODEL-CONSISTENCY-02	DATA-MODEL-CONSISTENCY-03	DATA-MODEL-CONSISTENCY-04	DATA-MODEL-CONSISTENCY-05	DATA-MODEL-CONSISTENCY-06	DATA-MODEL-CONSISTENCY-07	DATA-MODEL-CONSISTENCY-08	DATA-MODEL-CONSISTENCY-09	DATA-MODEL-CONSISTENCY-10 (I)	DATA-MODEL-CONSISTENCY-11
<i>Z1</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>OTHER</i>	✓	✓	✓	✓	✗	✓	✗	✓	✓	-	✓
<i>H8</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>IP-MAJOR-INDUSTRY-GROUPS</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>IP-DURABLE-GOODS-DETAIL</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>IP-NONDURABLE-GOODS-DETAIL</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>IP-MINING-AND-UTILITY-DETAIL</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>IP-MARKET-GROUPS</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>IP-SPECIAL-AGGREGATES</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>IP-GROSS-VALUE-STAGE-OF-PROCESS-GROUPS</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>MVA</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>DIFF</i>	✓	✓	✓	✓	6725778	✓	✓	✓	✓	-	✓
<i>CAP</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>CAPUTL</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>GVIP</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>RIW</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>KW</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓

Table 2: Evaluation of <http://frb.270a.info/sparql>

Data Sets

Data Sets	Constraints										
	DATA-MODEL-CONSISTENCY-01	DATA-MODEL-CONSISTENCY-02	DATA-MODEL-CONSISTENCY-03	DATA-MODEL-CONSISTENCY-04	DATA-MODEL-CONSISTENCY-05	DATA-MODEL-CONSISTENCY-06	DATA-MODEL-CONSISTENCY-07	DATA-MODEL-CONSISTENCY-08	DATA-MODEL-CONSISTENCY-09	DATA-MODEL-CONSISTENCY-10 (!)	DATA-MODEL-CONSISTENCY-11
<i>H41</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>H15</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>discontinued</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>RATES</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>VOL</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>OUTST</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>OUTST_YREND</i>	✓	✓	✓	✓	7395712	✓	✓	✓	✓	-	✓
<i>OUTST_OLD</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>RATES_OLD</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>H10</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>H6_M1</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>H6_M2</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>H6_MEMO</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>H6M3_DISCONTINUED</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>MATURITY_RISK</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>SIZE</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>BASERATE</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓

Table 3: Evaluation of <http://frb.270a.info/sparql>

Data Sets

Data Sets	Constraints										
	DATA-MODEL-CONSISTENCY-01	DATA-MODEL-CONSISTENCY-02	DATA-MODEL-CONSISTENCY-03	DATA-MODEL-CONSISTENCY-04	DATA-MODEL-CONSISTENCY-05	DATA-MODEL-CONSISTENCY-06	DATA-MODEL-CONSISTENCY-07	DATA-MODEL-CONSISTENCY-08	DATA-MODEL-CONSISTENCY-09	DATA-MODEL-CONSISTENCY-10 (!)	DATA-MODEL-CONSISTENCY-11
<i>TERMS_SET</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>PARTICIPATION</i>	✓	✓	✓	✓	143010	✓	✓	✓	✓	-	✓
<i>SBA</i>	✓	✓	✓	✓	99724	✓	✓	✓	✓	-	✓
<i>SUMMARY_STATS</i>	✓	✓	✓	✓	357060	✓	✓	✓	✓	-	✓
<i>H3</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>H3_DISCONTINUED</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>TERMS</i>	✓	✓	✓	14372	✗	✓	✓	✓	✓	-	✓
<i>CCOUT</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>OWNED</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>HIST</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>CHGDEL</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>SLOOS</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>REASONS</i>	✓	✓	✓	✓	✗	✓	✓	✓	✓	-	✓
<i>DISCONTINUED</i>	✓	✓	✓	✓	1270114	✓	✓	✓	✓	-	✓
<i>FOR</i>	✓	✓	✓	✓	184416	✓	✓	✓	✓	-	✓

Table 4: Evaluation of <http://frb.270a.info/sparql>

Data Sets

2 Existential Quantifications

Data Sets	Constraints			
	<i>EXISTENTIAL-QUANTIFICATIONS-01</i>			
	<i>EXISTENTIAL-QUANTIFICATIONS-02</i>			
	<i>EXISTENTIAL-QUANTIFICATIONS-03</i>			
	<i>EXISTENTIAL-QUANTIFICATIONS-04</i>			
<i>http://frb.270a.info/sparql</i>	8	✓	✓	✓

Table 5: Evaluation of *http://frb.270a.info/sparql*

3 Cardinality Restrictions

Data Sets	Constraints
http://frb.270a.info/sparql 30	<div>MINIMUM-QUALIFIED-CARDINALITY-RESTRICTIONS-02</div> <div>MAXIMUM-QUALIFIED-CARDINALITY-RESTRICTIONS-01</div> <div>EXACT-UNQUALIFIED-CARDINALITY-RESTRICTIONS-01</div> <div>EXACT-QUALIFIED-CARDINALITY-RESTRICTIONS-02</div>
	✓ ✓ ✓

Table 6: Evaluation of <http://frb.270a.info/sparql>

Data Sets	Constraints
	MAXIMUM-QUALIFIED-CARDINALITY-RESTRICTIONS-01
<i>Z1</i>	✓
<i>OTHER</i>	✓
<i>H8</i>	✓
<i>IP_MAJOR_INDUSTRY_GROUPS</i>	✓
<i>IP_DURABLE_GOODS_DETAIL</i>	✓
<i>IP_NONDURABLE_GOODS_DETAIL</i>	✓
<i>IP_MINING_AND_UTILITY_DETAIL</i>	✓
<i>IP_MARKET_GROUPS</i>	✓
<i>IP_SPECIAL_AGGREGATES</i>	✓
<i>IP_GROSS_VALUE_STAGE_OF_PROCESS_GROUPS</i>	✓
<i>MVA</i>	✓
<i>DIFF</i>	✓
<i>CAP</i>	✓
<i>CAPUTL</i>	✓
<i>GVIP</i>	✓
<i>RIW</i>	✓
<i>KW</i>	✓

Table 7: Evaluation of <http://frb.270a.info/sparql>

Data Sets

	Constraints
	MAXIMUM-QUALIFIED-CARDINALITY-RESTRICTIONS-01
Data Sets	
<i>H41</i>	✓
<i>H15</i>	✓
<i>discontinued</i>	✓
<i>RATES</i>	✓
<i>VOL</i>	✓
<i>OUTST</i>	✓
<i>OUTST_YREND</i>	✓
<i>OUTST_OLD</i>	✓
<i>RATES_OLD</i>	✓
<i>H10</i>	✓
<i>H6_M1</i>	✓
<i>H6_M2</i>	✓
<i>H6_MEMO</i>	✓
<i>H6M3_DISCONTINUED</i>	✓
<i>MATURITY_RISK</i>	✓
<i>SIZE</i>	✓
<i>BASERATE</i>	✓

Table 8: Evaluation of <http://frb.270a.info/sparql>

Data Sets

Data Sets	Constraints
	MAXIMUM-QUALIFIED-CARDINALITY-RESTRICTIONS-01
<i>TERMS_SET</i>	✓
<i>PARTICIPATION</i>	✓
<i>SBA</i>	✓
<i>SUMMARY_STATS</i>	✓
<i>H3</i>	✓
<i>H3_DISCONTINUED</i>	✓
<i>TERMS</i>	✓
<i>CCOUT</i>	✓
<i>OWNED</i>	✓
<i>HIST</i>	✓
<i>CHGDEL</i>	✓
<i>SLOOS</i>	✓
<i>REASONS</i>	✓
<i>DISCONTINUED</i>	✓
<i>FOR</i>	✓

Table 9: Evaluation of <http://frb.270a.info/sparql>

Data Sets

4 Structure

Data Sets	Constraints	
	<i>STRUCTURE-01</i>	<i>STRUCTURE-02</i>
<i>http://frb.270a.info/sparql</i>	✓	✓

Table 10: Evaluation of *http://frb.270a.info/sparql*

5 Further Constraints