
カルチュラル・ジャパンのあつめかた

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デジタルアーカイブ学会第6回研究大会サテライト・セッション
2021-10-12 神崎正英

1 多分野統合ポータルの課題と対策

■ 多ソース利用の課題

- 分散していて**アクセス方法**もさまざま
- 取得できる**データ形式**がさまざま
- 同一対象でも**ID**や**記述**がさまざま

→ アクセス

- メタデータのポータルをつくり発信元にリンク
- 分野ごとに先達あり

→ データ形式

- 記述の基本要素を単純化する（シンプルなものを組み合わせる）
- スキーマを固定せず柔軟にする（異なるモデルや語彙でも吸収できる）

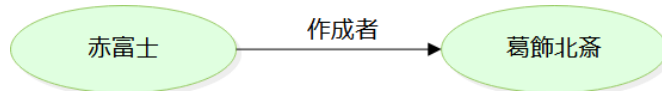
→ IDと記述

- グローバルな識別子＝多様につながるリンクするデータ[1]
- 値のばらつきを正規化。ただし元データも確認できること
 - ・ "葛飾北斎画"、"勝川春朗筆"は「葛飾北斎」に統一するが、元の記述も分かるようにする

2 RDF : シンプルで柔軟なモデル

■ ささまざまな記述をRDFトリプルで単純化する

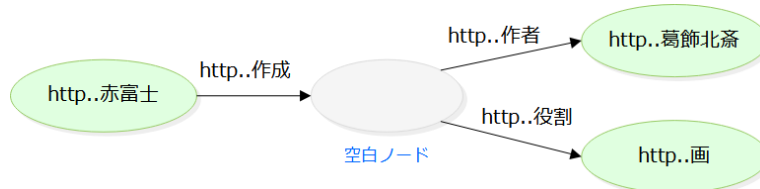
- 項目：値ペアの対象（主語）を明示 → 主語—述語—目的語の三つ組（トリプル）



- トリプルの各要素をURIで識別する。目的語が文字列そのものならリテラルとする
- 名前付けしないノード＝空白ノードも可。内部的にのみ共有できる

■ 柔軟なグラフ構造

- 主語、目的語のURIが同じならば、トリプルをつないでグラフを構成できる
- トリプルはあとで繋ぐことができる＝事前にスキーマを固定しなくて良い
- 複合的な値は分解し、空白ノードを用いて構造化できる
 - ▶ 「葛飾北斎画」 → 「作成：作者＝葛飾北斎；役割＝画」

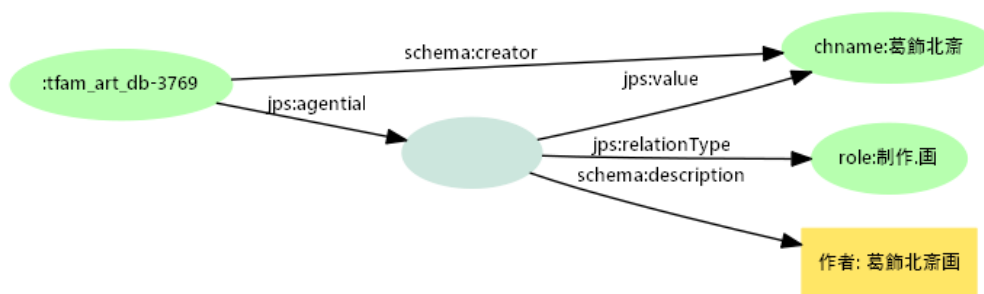


- 内部的にはトリプルが3つあるだけ＝構造化のために関係テーブル設計などは不要

3 ジャパンサーチ利活用スキーマ

■ 単純記述と構造化記述の二層モデル

- 「いつ」「どこ」「だれ」を中心に値を正規化して単純記述
- 細かな違いや元データは構造化記述で保持する
- 容易なアクセス／検索と詳細さを並立させる二層記述モデル[2]



- 正規化名（chname:葛飾北斎など）は可能な限りWikidataなどLODにリンク

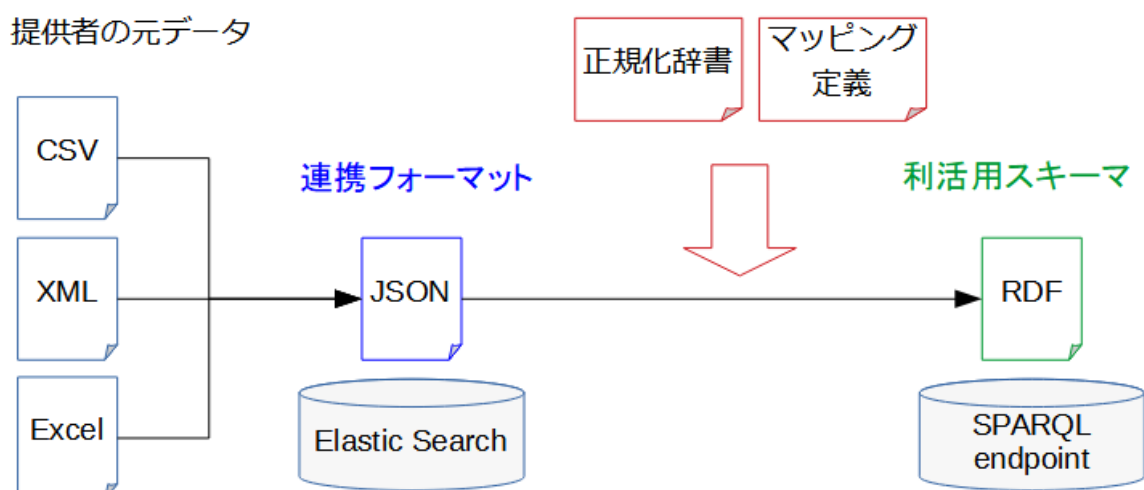
■ アクセス、ソース情報の分離

- アイテムのメタデータと、その取得やアクセスに関する情報、およびソースに関する情報を分離
- ポータルから提供元への誘導
- 同一対象に関する複数機関からのメタデータ記述の並立

4 多様なデータから利活用スキーマRDFへ

- 連携フォーマットと利活用スキーマの2段変換

- 提供元のデータをそのまま維持し、共通ラベルを付加する**連携フォーマット**
- 連携フォーマットJSONから個別マッピング定義と正規化辞書で**利活用スキーマ**^[3]RDFに
- 同時に主要項目値を可能な限り正規化（元値は構造化ノードに保持）

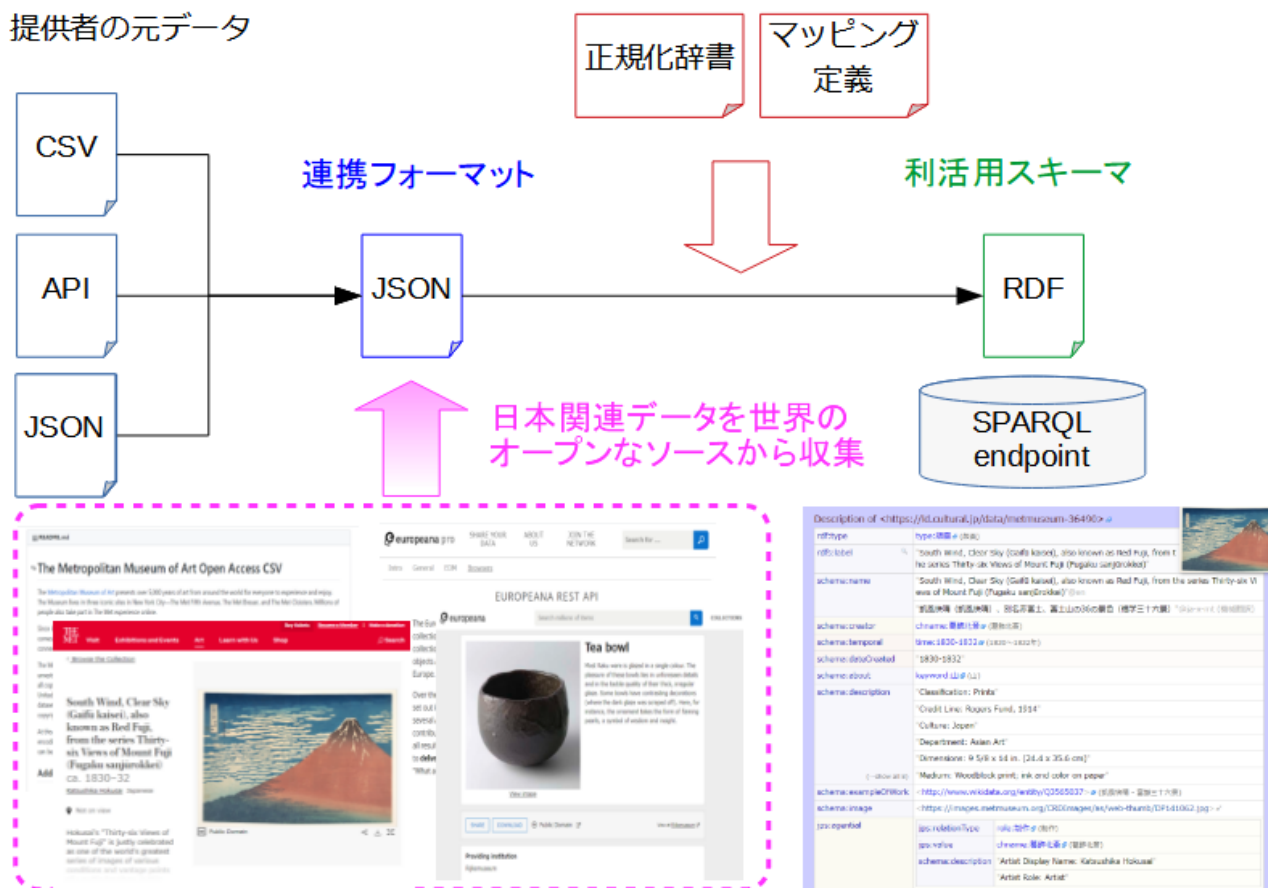


Description of https://www.chinese360.com/data/artist_id_207292/		
urlType	Page (网页)	
urlContent	清江先生 松山草堂	
schemaName	Thirty-six Views of Mount Fuji: First Spring Day (第 一山科三十六景之春景) 1654-1656, 1704, 1717, 1720, 1721, 1722, 1723, 1724, 1725, 1726, 1727, 1728, 1729, 1730, 1731, 1732, 1733, 1734, 1735, 1736, 1737, 1738, 1739, 1740, 1741, 1742, 1743, 1744, 1745, 1746, 1747, 1748, 1749, 1750, 1751, 1752, 1753, 1754, 1755, 1756, 1757, 1758, 1759, 1760, 1761, 1762, 1763, 1764, 1765, 1766, 1767, 1768, 1769, 1770, 1771, 1772, 1773, 1774, 1775, 1776, 1777, 1778, 1779, 1780, 1781, 1782, 1783, 1784, 1785, 1786, 1787, 1788, 1789, 1790, 1791, 1792, 1793, 1794, 1795, 1796, 1797, 1798, 1799, 1800, 1801, 1802, 1803, 1804, 1805, 1806, 1807, 1808, 1809, 1810, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1819, 1820, 1821, 1822, 1823, 1824, 1825, 1826, 1827, 1828, 1829, 1830, 1831, 1832, 1833, 1834, 1835, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362,	
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schemaExpected	1654-1656 (1654)	
schemaTargeted	1654-1656 (1654-1656)	
schemaControl	1654-1656	
schemaContented	"Thirty-six Views of Mount Fuji: First Spring Day (第 一山科三十六景之春景)"	
schemaContentId	"name: 36.1, 36.2, 36.3"	
"work description: A masterpiece of the Thirty-six Views of Mount Fuji series, the 'Milder Spring' refers to the southern view. It is said that the series, also known as 'First Spring', can only be seen in the early morning from snow-cum rain. There are various theories regarding this position, though from the placement of Mt. Fuji on the right and looking the right can only mean the left (the west). It is thought that this depicts the northern side of Mt. Fuji from somewhere near Lake Kawaguchi. The master's approach of Mt. Fuji, featuring a valley above the mountainous clouds which float at the same level, is a conventional master piece from many works of art that embody Mt. Fuji."		
“名称: 松山 属性: 无 材质: 无 尺寸: 无 颜色: 无 年代: 清江先生 松山草堂 (清江先生) ”		
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5 カルチュラル・ジャパンへの応用

■ 海外のオープンデータをマッピング

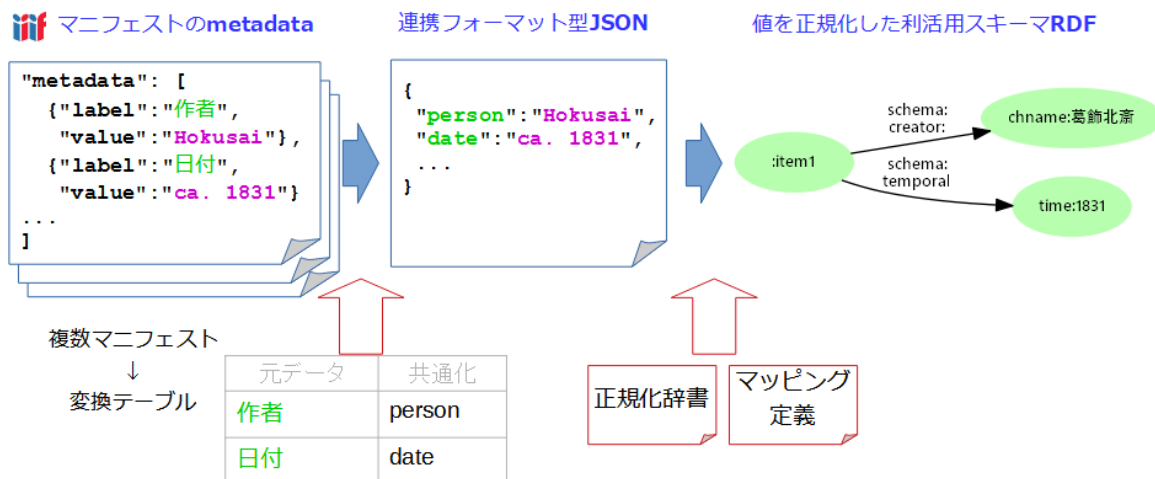
- メトロポリタン美術館のオープンデータ[4]を利活用スキーマに変換してみた[5]のが最初
- API、CSVなど多様な形で提供されるデータ[6]を、いったん連携フォーマット準拠のJSONに変換 → ジャパンサーチと同様にマッピング定義 → 利活用スキーマ準拠RDF → CJのRDFストア[7]に投入



6 IIIFマニフェストも利用する

■ IIIFマニフェストのポータルから利活用フォーマットへ

- IIIF Discovery in Japan^[8]がマニフェストを収集
- IIIFマニフェストのmetadata (labelとvalueの対)をいったん中間形式JSONに変換
→ 連携フォーマット型JSON→利活用スキーマのマッピングを用意して変換



7 URIを利用した情報の追加

■ 翻訳ラベル

- 海外情報は多くが英語ほか日本語以外のラベル → 機械翻訳も利用しながら、日本語化ラベルを加える
試み
- URIを使ってマージできるので、翻訳ラベルだけを後付け可能

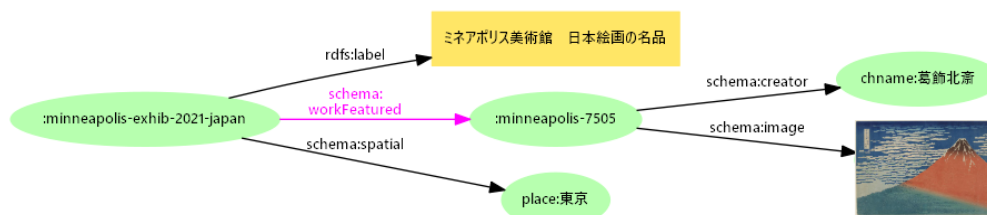
Description of <<https://id.cultural.jp/data/metmuseum-55736>>

rdfs:type	type:版画 (版画)
rdfs:label	"South Wind, Clear Sky (Gaifū kaisei), also known as Red Fuji, from the series Thirty-six Views of Mount Fuji (Fugaku sanjūrokkei)"
schema:name	"South Wind, Clear Sky (Gaifū kaisei), also known as Red Fuji, from the series Thirty-six Views of Mount Fuji (Fugaku sanjūrokkei)"@en
翻訳ラベルを追加→	"飢風快晴 (飢風快晴)、別名赤富士、富士山の36の景色 (福学三十六景)"@ja-x-mt (機械翻訳)



■ 美術館のアイテムを展覧会情報で利用する

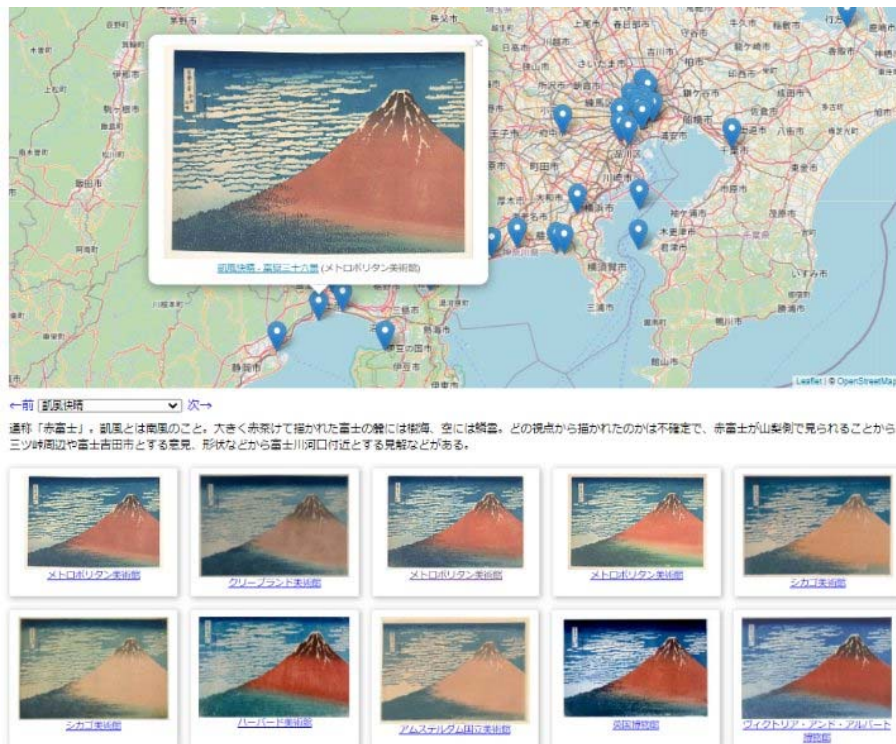
- 展覧会に関する基本情報を利活用スキーマで記述 (例: ミネアポリス美術館 日本絵画の名品^[9])
 - 展示作品を schema:workFeatured でアイテム情報にリンク
 - ・ 図録が手元があれば、展覧会内の部門分けを hasPart として構造化
- セルフミュージアムで仮想展覧会も可能^[10]



8 アイテム記述RDFの活用：富嶽三十六景集

■ 富嶽三十六景の版画を集約する

- 富嶽三十六景の各版画アイテムを全体からピックアップ（作者、タイプなどを利用）
- WikidataのURIに `schema:exampleOfWork` で関連付け同一作品を集約
- それぞれの場所情報をWikidataから取得し、地図に表示^[11]



9 まとめ

■ 世界のデータをポータルに集めて同じモデルで提供

- 所蔵館をこえて横断検索や集約ができる
- 各館のモデルの違い、表記の違いを吸収して一貫した利用
- ジャパンサーチ正規化名はWikidataなどLODにリンク

■ RDFの柔軟性を生かした利活用スキーマ

- シンプルな検索を可能にするschema.orgの単純記述
- 元データの細かな違い（役割、記述スタイル）を反映する構造化記述
- 標準クエリ言語SPARQLで自在に検索、取得が可能

■ URIを利用したデータ／グラフの連結

- 情報をあとから追加できる（翻訳ラベル、展覧会情報など）
- 同一作品のバリエーションを、Wikidataなどにつないで集約
- 外部LODから取得する情報も加えて付加価値のある表現ができる

10 参照先

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