S2 Appendix. Pokémon key example

```
1  {
2    "$schema":
3  "https://raw.githubusercontent.com/WouterKoch/Clavis/main/Schema/Clavi
4  s.json",
5    "title": "A key to a selection of Pokémon",
6    "language": "en",
7    "license": "https://creativecommons.org/licenses/by/4.0/",
8    "creator": "person:wouterkoch",
9    "lastModified": "2022-03-19 21:35:25",
10   "identifier": "26b57071-15ca-4b44-92a4-b61181f15373",
11   "persons": [
12     {
13       "id": "person:wouterkoch",
14       "name": "Wouter Koch"
15     }
16   ],
17   "organizations": [
18     {
19       "id": "organization:ntnu",
20       "name": "Norwegian University of Science and Technology",
21       "url": "https://www.ntnu.no"
22     }
23   ],
24   "taxa": [
25     {
26       "id": "taxon:pikachuidae",
27       "scientificName": "Pikachuidae",
28       "children": [
29         {
30           "id": "taxon:pokemon_172",
31           "scientificName": "Pichu",
32           "children": [
33             {
34               "id": "taxon:pokemon_172_standard",
35               "label": ""
36             },
37             {
38               "id": "taxon:pokemon_172_shiny",
39               "label": "Shiny"
```

```
40            }
41          ]
42        },
43        {
44          "id": "taxon:pokemon_025",
45          "scientificName": "Pikachu",
46          "externalReference": [
47            {
48              "serviceId": "service:wikidata",
49              "externalId": "Q9351"
50            },
51            {
52              "serviceId": "service:example_api",
53              "externalId": "Pikachu"
54            }
55          ],
56          "followUp": "https://example.com/pikachu_costumes",
57          "children": [
58            {
59              "id": "taxon:pokemon_025_standard",
60              "isEndPoint": true,
61              "label": "",
62              "children": [
63                {
64                  "id": "taxon:pokemon_025_standard_male",
65                  "label": "♂"
66                },
67                {
68                  "id": "taxon:pokemon_025_standard_female",
69                  "label": "♀"
70                }
71              ]
72            },
73            {
74              "id": "taxon:pokemon_025_shiny",
75              "label": "Shiny"
76            }
77          ]
78        },
79        {
80          "id": "taxon:pokemon_026",
81          "scientificName": "Raichu",
82          "children": [
83            {
84              "id": "taxon:pokemon_026_standard",
85              "label": ""
```

```json
        },
        {
          "id": "taxon:pokemon_026_shiny",
          "label": "Shiny"
        }
      ]
    }
  ]
},
{
  "id": "taxon:pokemon_115",
  "scientificName": "Kangaskhan",
  "geography": {
    "polygon": [
      [
        [
          [
            130.0341796875,
            -10.228437266155943
          ],
          [
            111.97265625,
            -21.779905342529634
          ],
          [
            115.09277343749999,
            -36.91476428895593
          ],
          [
            131.2646484375,
            -32.916485347314385
          ],
          [
            141.8994140625,
            -40.44694705960048
          ],
          [
            150.82031249999997,
            -38.8225909761771
          ],
          [
            154.95117187499997,
            -26.15543796871355
          ],
          [
            142.3388671875,
```

```
132                  -10.09867012060338
133                ],
134                [
135                  138.69140625,
136                  -12.382928338487396
137                ],
138                [
139                  130.0341796875,
140                  -10.228437266155943
141                ]
142              ]
143            ]
144          ]
145        }
146      },
147      {
148        "id": "taxon:castform",
149        "scientificName": "Castform"
150      }
151    ],
152    "characters": [
153      {
154        "id": "character:type_of_pokemon",
155        "title": "Pokémon type",
156        "states": [
157          {
158            "id": "state:pokemon_type_electric",
159            "title": "Electric"
160          }
161        ]
162      },
163      {
164        "id": "character:color",
165        "title": "Color of body",
166        "states": [
167          {
168            "id": "state:color_blue",
169            "title": "Blue"
170          },
171          {
172            "id": "state:color_red",
173            "title": "Red"
174          }
175        ]
176      },
177      {
```

```
178        "id": "character:all_colors",
179        "title": "Colors on body of the Pokémon",
180        "type": "non-exclusive",
181        "states": [
182          {
183            "id": "state:colors_yellow",
184            "title": "Yellow"
185          },
186          {
187            "id": "state:colors_red",
188            "title": "Red"
189          },
190          {
191            "id": "state:colors_black",
192            "title": "Black"
193          },
194          {
195            "id": "state:colors_brown",
196            "title": "Brown"
197          },
198          {
199            "id": "state:colors_white",
200            "title": "White"
201          }
202        ]
203      },
204      {
205        "id": "character:tail_shape",
206        "title": "Shape of the tail end",
207        "states": [
208          {
209            "id": "state:pointy_tail",
210            "title": "Pointy",
211            "media": "media:pointy_tail"
212          },
213          {
214            "id": "state:lobed_tail",
215            "title": "Double-lobed",
216            "media": "media:lobed_tail"
217          }
218        ]
219      },
220      {
221        "id": "character:wearing_hat",
222        "title": "Is the Pokémon wearing a hat?",
223        "states": [
```

```json
224        {
225          "id": "state:hat",
226          "title": "Yes"
227        },
228        {
229          "id": "state:no_hat",
230          "title": "No"
231        }
232      ]
233    },
234    {
235      "id": "character:hat_shape",
236      "title": "What is the style of the hat?",
237      "logicalPremise": "state:hat",
238      "states": [
239        {
240          "id": "state:bowler_hat",
241          "title": "Bowler hat"
242        },
243        {
244          "id": "state:top_hat",
245          "title": "Top hat"
246        }
247      ]
248    },
249    {
250      "id": "character:weight",
251      "title": "How much does the Pokémon weigh?",
252      "userRequirement": "requirement:catch",
253      "type": "numerical",
254      "min": 1,
255      "max": 125,
256      "stepSize": 1,
257      "unit": "kg"
258    }
259  ],
260  "statements": [
261    {
262      "id": "statement:pikachu_is_electric",
263      "taxon": "taxon:pokemon_025",
264      "character": "character:type_of_pokemon",
265      "value": "state:pokemon_type_electric",
266      "frequency": 1
267    },
268    {
269      "id": "statement:pikachu_is_never_blue",
```

```json
      "taxon": "taxon:pokemon_025",
      "character": "character:color",
      "value": "state:color_blue",
      "frequency": 0
    },
    {
      "id": "statement:pikachu_lobed_tail",
      "taxon": "taxon:pokemon_025",
      "character": "character:tail_shape",
      "value": "state:lobed_tail",
      "frequency": 0.5
    },
    {
      "id": "statement:pikachu_pointy_tail",
      "taxon": "taxon:pokemon_025",
      "character": "character:tail_shape",
      "value": "state:pointy_tail",
      "frequency": 0.5
    },
    {
      "id": "statement:pikachu_weight",
      "taxon": "taxon:pokemon_025",
      "character": "character:weight",
      "value": [
        2.98,
        10.1
      ],
      "frequency": 1
    },
    {
      "id": "statement:castform_rain_type",
      "taxon": "taxon:castform",
      "character": "character:castform_type",
      "value": "state:rainy_castform",
      "frequency": 0.2
    },
    {
      "id": "statement:castform_rain_type_bergen",
      "taxon": "taxon:castform",
      "character": "character:castform_type",
      "value": "state:rainy_castform",
      "frequency": 0.9,
      "geography": {
        "polygon": [
          [
            [
```

```
316            [
317              5.27618408203125,
318              60.44976847885747
319            ],
320            [
321              5.218505859375,
322              60.4233434866285
323            ],
324            [
325              5.27618408203125,
326              60.36160157353732
327            ],
328            [
329              5.395660400390625,
330              60.36839212633114
331            ],
332            [
333              5.4052734375,
334              60.421309904895715
335            ],
336            [
337              5.27618408203125,
338              60.44976847885747
339            ]
340          ]
341        ]
342      ]
343    }
344  },
345  {
346    "id": "statement:pikachu_contains_yellow",
347    "taxon": "taxon:pokemon_025",
348    "character": "character:all_colors",
349    "value": "state:colors_yellow",
350    "frequency": 1
351  },
352  {
353    "id": "statement:pikachu_contains_black",
354    "taxon": "taxon:pokemon_025",
355    "character": "character:all_colors",
356    "value": "state:colors_black",
357    "frequency": 1
358  },
359  {
360    "id": "statement:pikachu_contains_red",
361    "taxon": "taxon:pokemon_025",
```

```
362          "character": "character:all_colors",
363          "value": "state:colors_red",
364          "frequency": 1
365        },
366        {
367          "id": "statement:pikachu_contains_no_brown",
368          "taxon": "taxon:pokemon_025",
369          "character": "character:all_colors",
370          "value": "state:colors_brown",
371          "frequency": 0
372        },
373        {
374          "id": "statement:pikachu_contains_no_white",
375          "taxon": "taxon:pokemon_025",
376          "character": "character:all_colors",
377          "value": "state:colors_white",
378          "frequency": 0
379        },
380        {
381          "id": "statement:raichu_contains_yellow",
382          "taxon": "taxon:pokemon_026",
383          "character": "character:all_colors",
384          "value": "state:colors_yellow",
385          "frequency": 1
386        },
387        {
388          "id": "statement:raichu_contains_no_black",
389          "taxon": "taxon:pokemon_026",
390          "character": "character:all_colors",
391          "value": "state:colors_black",
392          "frequency": 0
393        },
394        {
395          "id": "statement:raichu_contains_no_red",
396          "taxon": "taxon:pokemon_026",
397          "character": "character:all_colors",
398          "value": "state:colors_red",
399          "frequency": 0
400        },
401        {
402          "id": "statement:raichu_contain_brown",
403          "taxon": "taxon:pokemon_026",
404          "character": "character:all_colors",
405          "value": "state:colors_brown",
406          "frequency": 1
407        },
```

```
408        {
409          "id": "statement:raichu_contains_white",
410          "taxon": "taxon:pokemon_026",
411          "character": "character:all_colors",
412          "value": "state:colors_white",
413          "frequency": 1
414        }
415      ],
416      "userRequirements": [
417        {
418          "id": "requirement:catch",
419          "title": "Catching required",
420          "warning": "To answer this, you have to catch the Pokémon
421  first.",
422          "description": "1. Select a pokéball color.\n2. Hold the ball,
423  spinning it a few times.\n3. Fling the pokéball towards the
424  Pokémon, adjusting for the curveball generated from spinning the
425  ball.\n4. Try to hit the circle when it is at its smallest.",
426          "descriptionUrl":
427  "https://niantic.helpshift.com/hc/en/6-pokemon-go/faq/102-finding-catc
428  hing-wild-pokemon/"
429        }
430      ],
431      "externalServices": [
432        {
433          "id": "service:wikidata",
434          "title": "Wikidata",
435          "url": "https://www.wikidata.org/w/api.php"
436        },
437        {
438          "id": "service:example_api",
439          "title": "Example",
440          "description": "Gives the probability for a taxon, given its
441  weight and location.",
442          "url": "https://api.example.com"
443        }
444      ],
445      "mediaElements": [
446        {
447          "id": "media:pointy_tail",
448          "mediaElement": {
449            "file": [
450              {
451                "url":
452  "https://github.com/WouterKoch/Clavis/raw/main/Keys/Images/pointy_100.
453  png",
```

```
454            "width": 100,
455            "height": 100,
456            "license":
457  "https://creativecommons.org/licenses/by/4.0/",
458            "creator": "person:wouterkoch"
459          },
460          {
461            "url":
462  "https://github.com/WouterKoch/Clavis/raw/main/Keys/Images/pointy_250.
463  png",
464            "width": 250,
465            "height": 250,
466            "license":
467  "https://creativecommons.org/licenses/by/4.0/",
468            "creator": "person:wouterkoch"
469          }
470        ]
471      }
472    },
473    {
474      "id": "media:lobed_tail",
475      "mediaElement": {
476        "file": [
477          {
478            "url":
479  "https://github.com/WouterKoch/Clavis/raw/main/Keys/Images/lobed_100.p
480  ng",
481            "width": 100,
482            "height": 100,
483            "license":
484  "https://creativecommons.org/licenses/by/4.0/",
485            "creator": "person:wouterkoch"
486          },
487          {
488            "url":
489  "https://github.com/WouterKoch/Clavis/raw/main/Keys/Images/lobed_250.p
490  ng",
491            "width": 250,
492            "height": 250,
493            "license":
494  "https://creativecommons.org/licenses/by/4.0/",
495            "creator": "person:wouterkoch"
496          }
497        ]
498      }
499    }
```

```
500    ]
501  }
```