

S2 Appendix. Pokémon key example

```
1 {
2   "$schema":
3   "https://raw.githubusercontent.com/WouterKoch/Clavis/main/Schema/Clavis.
4   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"
```

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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": ""

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86         },
87         {
88             "id": "taxon:pokemon_026_shiny",
89             "label": "Shiny"
90         }
91     ]
92 }
93 ]
94 },
95 {
96     "id": "taxon:pokemon_115",
97     "scientificName": "Kangaskhan",
98     "geography": {
99         "polygon": [
100             [
101                 [
102                     130.0341796875,
103                     -10.228437266155943
104                 ],
105                 [
106                     111.97265625,
107                     -21.779905342529634
108                 ],
109                 [
110                     115.09277343749999,
111                     -36.91476428895593
112                 ],
113                 [
114                     131.2646484375,
115                     -32.916485347314385
116                 ],
117                 [
118                     141.8994140625,
119                     -40.44694705960048
120                 ],
121                 [
122                     150.82031249999997,
123                     -38.8225909761771
124                 ],
125                 [
126                     154.95117187499997,
127                     -26.15543796871355
128                 ],
129                 [
130                     142.3388671875,
131

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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     {

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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": [

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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     "states": {
255         "id": "state:weight",
256         "min": 1,
257         "max": 125,
258         "stepSize": 1,
259         "unit": "kg"
260     }
261 }
262 ],
263 "statements": [
264     {
265         "id": "statement:pikachu_is_electric",
266         "taxon": "taxon:pokemon_025",
267         "character": "character:type_of_pokemon",
268         "value": "state:pokemon_type_electric",
269         "frequency": 1

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270 },
271 {
272     "id": "statement:pikachu_is_never_blue",
273     "taxon": "taxon:pokemon_025",
274     "character": "character:color",
275     "value": "state:color_blue",
276     "frequency": 0
277 },
278 {
279     "id": "statement:pikachu_lobed_tail",
280     "taxon": "taxon:pokemon_025",
281     "character": "character:tail_shape",
282     "value": "state:lobed_tail",
283     "frequency": 0.5
284 },
285 {
286     "id": "statement:pikachu_pointy_tail",
287     "taxon": "taxon:pokemon_025",
288     "character": "character:tail_shape",
289     "value": "state:pointy_tail",
290     "frequency": 0.5
291 },
292 {
293     "id": "statement:pikachu_weight",
294     "taxon": "taxon:pokemon_025",
295     "character": "character:weight",
296     "value": [
297         2.98,
298         10.1
299     ],
300     "frequency": 1
301 },
302 {
303     "id": "statement:castform_rain_type",
304     "taxon": "taxon:castform",
305     "character": "character:castform_type",
306     "value": "state:rainy_castform",
307     "frequency": 0.2
308 },
309 {
310     "id": "statement:castform_rain_type_bergen",
311     "taxon": "taxon:castform",
312     "character": "character:castform_type",
313     "value": "state:rainy_castform",
314     "frequency": 0.9,
315     "geography": {

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

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

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

```

```

454         "url":
455         "https://github.com/WouterKoch/Clavis/raw/main/Keys/Images/pointy_100.pn
456         g",
457             "width": 100,
458             "height": 100,
459             "license": "https://creativecommons.org/licenses/by/4.0/",
460             "creator": "person:wouterkoch"
461         },
462         {
463             "url":
464             "https://github.com/WouterKoch/Clavis/raw/main/Keys/Images/pointy_250.pn
465             g",
466                 "width": 250,
467                 "height": 250,
468                 "license": "https://creativecommons.org/licenses/by/4.0/",
469                 "creator": "person:wouterkoch"
470             }
471         ]
472     }
473 },
474 {
475     "id": "media:lobed_tail",
476     "mediaElement": {
477         "file": [
478             {
479                 "url":
480                 "https://github.com/WouterKoch/Clavis/raw/main/Keys/Images/lobed_100.png
481                 ",
482                     "width": 100,
483                     "height": 100,
484                     "license": "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.png
490                     ",
491                         "width": 250,
492                         "height": 250,
493                         "license": "https://creativecommons.org/licenses/by/4.0/",
494                         "creator": "person:wouterkoch"
495                     }
496                 ]
497             }
498         }
499     ]

```

500 }