

## S2 Appendix. Pokémon key example

```
{
  "$schema":
    "https://raw.githubusercontent.com/WouterKoch/Clavis/main/Schema/Clavis.
    json",
  "title": "A key to a selection of Pokémon",
  "language": "en",
  "license": "https://creativecommons.org/licenses/by/4.0/",
  "creator": "person:wouterkoch",
  "lastModified": "2022-03-19 21:35:25",
  "identifier": "26b57071-15ca-4b44-92a4-b61181f15373",
  "persons": [
    {
      "id": "person:wouterkoch",
      "name": "Wouter Koch"
    }
  ],
  "organizations": [
    {
      "id": "organization:ntnu",
      "name": "Norwegian University of Science and Technology",
      "url": "https://www.ntnu.no"
    }
  ],
  "taxa": [
    {
      "id": "taxon:pikachuidae",
      "scientificName": "Pikachuidae",
      "children": [
        {
          "id": "taxon:pokemon_172",
          "scientificName": "Pichu",
          "children": [
            {
              "id": "taxon:pokemon_172_standard",
              "label": ""
            },
            {
              "id": "taxon:pokemon_172_shiny",
              "label": "Shiny"
            }
          ]
        }
      ]
    },
    {
      "id": "taxon:pokemon_025",
      "scientificName": "Pikachu",
      "externalReference": [
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    {
      "serviceId": "service:wikidata",
      "externalId": "Q9351"
    },
    {
      "serviceId": "service:example_api",
      "externalId": "Pikachu"
    }
  ],
  "followUp": "https://example.com/pikachu_costumes",
  "children": [
    {
      "id": "taxon:pokemon_025_standard",
      "isEndPoint": true,
      "label": "",
      "children": [
        {
          "id": "taxon:pokemon_025_standard_male",
          "label": "♂"
        },
        {
          "id": "taxon:pokemon_025_standard_female",
          "label": "♀"
        }
      ]
    },
    {
      "id": "taxon:pokemon_025_shiny",
      "label": "Shiny"
    }
  ]
},
{
  "id": "taxon:pokemon_026",
  "scientificName": "Raichu",
  "children": [
    {
      "id": "taxon:pokemon_026_standard",
      "label": ""
    },
    {
      "id": "taxon:pokemon_026_shiny",
      "label": "Shiny"
    }
  ]
}
],
},
{
  "id": "taxon:pokemon_115",
  "scientificName": "Kangaskhan",
  "geography": {

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    "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,
            -10.09867012060338
          ],
          [
            138.69140625,
            -12.382928338487396
          ],
          [
            130.0341796875,
            -10.228437266155943
          ]
        ]
      ]
    ],
    {
      "id": "taxon:castform",
      "scientificName": "Castform"
    }
  }

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],
"characters": [
  {
    "id": "character:type_of_pokemon",
    "title": "Pokémon type",
    "states": [
      {
        "id": "state:pokemon_type_electric",
        "title": "Electric"
      }
    ]
  },
  {
    "id": "character:color",
    "title": "Color of body",
    "states": [
      {
        "id": "state:color_blue",
        "title": "Blue"
      },
      {
        "id": "state:color_red",
        "title": "Red"
      }
    ]
  },
  {
    "id": "character:all_colors",
    "title": "Colors on body of the Pokémon",
    "type": "non-exclusive",
    "states": [
      {
        "id": "state:colors_yellow",
        "title": "Yellow"
      },
      {
        "id": "state:colors_red",
        "title": "Red"
      },
      {
        "id": "state:colors_black",
        "title": "Black"
      },
      {
        "id": "state:colors_brown",
        "title": "Brown"
      },
      {
        "id": "state:colors_white",
        "title": "White"
      }
    ]
  }
]

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},
{
  "id": "character:tail_shape",
  "title": "Shape of the tail end",
  "states": [
    {
      "id": "state:pointy_tail",
      "title": "Pointy",
      "media": "media:pointy_tail"
    },
    {
      "id": "state:lobed_tail",
      "title": "Double-lobed",
      "media": "media:lobed_tail"
    }
  ]
},
{
  "id": "character:wearing_hat",
  "title": "Is the Pokémon wearing a hat?",
  "states": [
    {
      "id": "state:hat",
      "title": "Yes"
    },
    {
      "id": "state:no_hat",
      "title": "No"
    }
  ]
},
{
  "id": "character:hat_shape",
  "title": "What is the style of the hat?",
  "logicalPremise": "state:hat",
  "states": [
    {
      "id": "state:bowler_hat",
      "title": "Bowler hat"
    },
    {
      "id": "state:top_hat",
      "title": "Top hat"
    }
  ]
},
{
  "id": "character:weight",
  "title": "How much does the Pokémon weigh?",
  "userRequirement": "requirement:catch",
  "type": "numerical",
  "states": {

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        "id": "state:weight",
        "min": 1,
        "max": 125,
        "stepSize": 1,
        "unit": "kg"
    }
}
],
"statements": [
    {
        "id": "statement:pikachu_is_electric",
        "taxon": "taxon:pokemon_025",
        "character": "character:type_of_pokemon",
        "value": "state:pokemon_type_electric",
        "frequency": 1
    },
    {
        "id": "statement:pikachu_is_never_blue",
        "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",

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"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": [
      [
        [
          5.27618408203125,
          60.44976847885747
        ],
        [
          5.218505859375,
          60.4233434866285
        ],
        [
          5.27618408203125,
          60.36160157353732
        ],
        [
          5.395660400390625,
          60.36839212633114
        ],
        [
          5.4052734375,
          60.421309904895715
        ],
        [
          5.27618408203125,
          60.44976847885747
        ]
      ]
    ]
  }
},
{
  "id": "statement:pikachu_contains_yellow",
  "taxon": "taxon:pokemon_025",
  "character": "character:all_colors",
  "value": "state:colors_yellow",
  "frequency": 1
},
{
  "id": "statement:pikachu_contains_black",
  "taxon": "taxon:pokemon_025",
  "character": "character:all_colors",

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    "value": "state:colors_black",
    "frequency": 1
  },
  {
    "id": "statement:pikachu_contains_red",
    "taxon": "taxon:pokemon_025",
    "character": "character:all_colors",
    "value": "state:colors_red",
    "frequency": 1
  },
  {
    "id": "statement:pikachu_contains_no_brown",
    "taxon": "taxon:pokemon_025",
    "character": "character:all_colors",
    "value": "state:colors_brown",
    "frequency": 0
  },
  {
    "id": "statement:pikachu_contains_no_white",
    "taxon": "taxon:pokemon_025",
    "character": "character:all_colors",
    "value": "state:colors_white",
    "frequency": 0
  },
  {
    "id": "statement:raichu_contains_yellow",
    "taxon": "taxon:pokemon_026",
    "character": "character:all_colors",
    "value": "state:colors_yellow",
    "frequency": 1
  },
  {
    "id": "statement:raichu_contains_no_black",
    "taxon": "taxon:pokemon_026",
    "character": "character:all_colors",
    "value": "state:colors_black",
    "frequency": 0
  },
  {
    "id": "statement:raichu_contains_no_red",
    "taxon": "taxon:pokemon_026",
    "character": "character:all_colors",
    "value": "state:colors_red",
    "frequency": 0
  },
  {
    "id": "statement:raichu_contain_brown",
    "taxon": "taxon:pokemon_026",
    "character": "character:all_colors",
    "value": "state:colors_brown",
    "frequency": 1
  },

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    {
      "id": "statement:raichu_contains_white",
      "taxon": "taxon:pokemon_026",
      "character": "character:all_colors",
      "value": "state:colors_white",
      "frequency": 1
    }
  ],
  "userRequirements": [
    {
      "id": "requirement:catch",
      "title": "Catching required",
      "warning": "To answer this, you have to catch the Pokémon
first.",
      "description": "1. Select a pokéball color.n2. Hold the ball,
      spinning it a few times.n3. Fling the pokéball towards the Pokémon,
      adjusting for the curveball generated from spinning the ball.n4. Try to
      hit the circle when it is at its smallest.",
      "descriptionUrl":
      "https://niantic.helpshift.com/hc/en/6-pokemon-go/faq/102-finding-catchi
ng-wild-pokemon/"
    }
  ],
  "externalServices": [
    {
      "id": "service:wikidata",
      "title": "Wikidata",
      "url": "https://www.wikidata.org/w/api.php"
    },
    {
      "id": "service:example_api",
      "title": "Example",
      "description": "Gives the probability for a taxon, given its
weight and location.",
      "url": "https://api.example.com"
    }
  ],
  "mediaElements": [
    {
      "id": "media:pointy_tail",
      "mediaElement": {
        "file": [
          {
            "url":
      "https://github.com/WouterKoch/Clavis/raw/main/Keys/Images/pointy_100.pn
g",
            "width": 100,
            "height": 100,
            "license": "https://creativecommons.org/licenses/by/4.0/",
            "creator": "person:wouterkoch"
          }
        ],
        {

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        "url":
"https://github.com/WouterKoch/Clavis/raw/main/Keys/Images/pointy_250.png",
        "width": 250,
        "height": 250,
        "license": "https://creativecommons.org/licenses/by/4.0/",
        "creator": "person:wouterkoch"
    }
    ]
    },
    {
        "id": "media:lobed_tail",
        "mediaElement": {
            "file": [
                {
                    "url":
"https://github.com/WouterKoch/Clavis/raw/main/Keys/Images/lobed_100.png",
                    "width": 100,
                    "height": 100,
                    "license": "https://creativecommons.org/licenses/by/4.0/",
                    "creator": "person:wouterkoch"
                },
                {
                    "url":
"https://github.com/WouterKoch/Clavis/raw/main/Keys/Images/lobed_250.png",
                    "width": 250,
                    "height": 250,
                    "license": "https://creativecommons.org/licenses/by/4.0/",
                    "creator": "person:wouterkoch"
                }
            ]
        }
    }
]
}

```