



## Appendix 2 - Tongue Twister Configuration

---

```
{
  "Tree": "(Latin,(Romanian,(((Walloon,French),(((Portuguese,PortugueseBrazil),Spanish),Catalan)),
(Friulian,Italian))))";
  "NumberOfStates": 90,
  "Taxa": ["Latin", "French", "Spanish", "Italian", "PortugueseBrazil", "Portuguese", "Catalan",
"Walloon", "Friulian", "Romanian"],
  "PriorFrequencies": [0.027727,0.025909,0.009545,0.007273,0.010000,0.000909,0.027273,0.041818,0.037273
,0.015909,0.000455,0.006818,0.040909,0.035455,0.030455,0.040000,0.016818,0.000455,0.012273,0.028636
,0.030909,0.013182,0.002727,0.020909,0.020000,0.009545,0.043636,0.039091,0.011818,0.000909,0.001364
,0.016818,0.030909,0.020000,0.008636,0.002273,0.002273,0.014545,0.019091,0.000455,0.025455,0.000455
,0.003636,0.000909,0.008182,0.000455,0.000455,0.007273,0.007727,0.039091,0.013636,0.002273,0.040909
,0.000455,0.013636,0.000455,0.000455,0.000909,0.001818,0.000455,0.000455,0.005000,0.005000,0.000909
,0.000909,0.000455,0.006364,0.000455,0.001364,0.000455,0.005455,0.006364,0.000455,0.000455,0.005000
,0.028636,0.002727,0.000455,0.003182,0.004545,0.005455,0.003636,0.000455,0.004545,0.004545,0.007273
,0.000455,0.000455,0.000455,0.000455],
  "PartitionSets": [{"Name": "Nasal Vowel", "Set": [41, 42, 43, 44, 45, 48, 55, 61, 74, 77, 81, 85,
87]}, {"Name": "Vowel", "Set": [0, 2, 4, 6, 7, 9, 11, 15, 17, 21, 22, 25, 27, 29, 30, 31, 37, 39, 47,
54, 57, 59, 60, 62, 64, 67, 68, 69, 72, 78, 84, 88]}, {"Name": "Nasal Consonant", "Set": [13, 26, 38,
75, 86, 89]}, {"Name": "Non Syllabic Sonorants", "Set": [8, 12, 32, 33]}, {"Name": "Consonants", "Set": [1,
3, 5, 10, 14, 16, 18, 19, 20, 23, 24, 28, 34, 35, 36, 40, 46, 49, 50, 51, 52, 53, 56, 58, 63, 65, 66,
70, 71, 73, 76, 79, 80, 82, 83]}],
  "Words": [
    {"Name": "I", "Data": [
      {"Taxon": "Latin", "Segments": [-1, 0, 1, 2]},
      {"Taxon": "French", "Segments": [3, 4, -1, -1]},
      {"Taxon": "Spanish", "Segments": [5, -1, -1, 6]},
      {"Taxon": "Italian", "Segments": [7, -1, -1, 6]},
      {"Taxon": "PortugueseBrazil", "Segments": [-1, 0, -1, 8]},
      {"Taxon": "Portuguese", "Segments": [-1, 0, -1, 8]},
      {"Taxon": "Catalan", "Segments": [3, -1, -1, 9]},
      {"Taxon": "Walloon", "Segments": [10, 11, -1, -1]},
      {"Taxon": "Friulian", "Segments": [12, -1, -1, 6]},
      {"Taxon": "Romanian", "Segments": [12, 0, -1, 8]}
    ]},
    {"Name": "We", "Data": [
      {"Taxon": "Latin", "Segments": [13, 2, -1, 14, -1]},
      {"Taxon": "French", "Segments": [13, 15, -1, -1, -1]},
      {"Taxon": "Spanish", "Segments": [13, 6, -1, 14, -1]},
      {"Taxon": "Italian", "Segments": [13, 2, 7, -1, -1]},
      {"Taxon": "PortugueseBrazil", "Segments": [13, 9, 12, -1, 14]},
      {"Taxon": "Portuguese", "Segments": [13, 9, -1, 16, -1]},
      {"Taxon": "Walloon", "Segments": [13, 6, -1, -1, -1]},
      {"Taxon": "Friulian", "Segments": [13, 2, -1, -1, -1]},
      {"Taxon": "Romanian", "Segments": [13, 17, -1, -1, -1]}
    ]},
    {"Name": "YouPlural", "Data": [
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      {"Taxon": "French", "Segments": [18, 15, -1, -1]},
      {"Taxon": "Spanish", "Segments": [19, 6, -1, 14]},
      {"Taxon": "Italian", "Segments": [18, 2, 7, -1]},
      {"Taxon": "PortugueseBrazil", "Segments": [18, 9, 12, 14]},
      {"Taxon": "Portuguese", "Segments": [18, 6, -1, 16]},
      {"Taxon": "Catalan", "Segments": [19, 15, -1, 14]},
    ]}
  ]
}
```

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```
{
  "Taxon": "Walloon", "Segments": [18, 6, -1, 14]},
  {"Taxon": "Friulian", "Segments": [18, 2, -1, -1]},
  {"Taxon": "Romanian", "Segments": [18, 17, -1, -1]}
}],
{"Name": "YouSingular", "Data": [
  {"Taxon": "Latin", "Segments": [20, 21]},
  {"Taxon": "French", "Segments": [20, 22]},
  {"Taxon": "Spanish", "Segments": [20, 15]},
  {"Taxon": "Italian", "Segments": [20, 15]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 15]},
  {"Taxon": "Portuguese", "Segments": [20, 15]},
  {"Taxon": "Catalan", "Segments": [20, 15]},
  {"Taxon": "Walloon", "Segments": [20, 22]},
  {"Taxon": "Friulian", "Segments": [20, 15]},
  {"Taxon": "Romanian", "Segments": [20, 15]}
]},
{"Name": "YouSingular-VostramMercedem", "Data": [
  {"Taxon": "Spanish", "Segments": [-1, 15, 14, 20, 0, 23]},
  {"Taxon": "PortugueseBrazil", "Segments": [18, 6, 14, -1, 0, -1]},
  {"Taxon": "Portuguese", "Segments": [18, 9, 14, -1, 0, -1]},
  {"Taxon": "Catalan", "Segments": [18, 6, 14, 20, 0, -1]}
]},
{"Name": "Woman", "Data": [
  {"Taxon": "Latin", "Segments": [24, 25, -1, 26, 7, -1, 13, -1, 27]},
  {"Taxon": "French", "Segments": [24, 27, -1, 26, -1, -1, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [-1, 0, -1, 26, -1, 19, 28, -1, 27]},
  {"Taxon": "Italian", "Segments": [24, 0, 26, 26, 7, -1, 13, -1, 27]},
  {"Taxon": "PortugueseBrazil", "Segments": [24, 0, -1, 26, 0, -1, -1, -1, 29]},
  {"Taxon": "Portuguese", "Segments": [24, 0, -1, 26, 12, -1, -1, -1, 29]},
  {"Taxon": "Catalan", "Segments": [24, 0, -1, 26, -1, 19, 28, -1, 27]},
  {"Taxon": "Walloon", "Segments": [24, 30, -1, 26, -1, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [24, 31, -1, 26, 7, -1, 13, -1, 31]},
  {"Taxon": "Romanian", "Segments": [24, 0, -1, 26, 0, -1, -1, 12, 0]}
]},
{"Name": "Woman-Mulier", "Data": [
  {"Taxon": "Latin", "Segments": [26, 15, 32, 7, 0, 33, 0, 26]},
  {"Taxon": "Spanish", "Segments": [26, 15, 34, -1, 0, 28, -1, -1]},
  {"Taxon": "Italian", "Segments": [26, 6, 35, 35, 0, -1, -1, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [26, 15, 35, -1, 0, 36, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [26, 15, 35, -1, 0, 28, -1, -1]},
  {"Taxon": "Catalan", "Segments": [26, 15, 35, -1, 0, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [26, 15, -1, -1, 37, 33, -1, -1]},
  {"Taxon": "Romanian", "Segments": [26, 15, -1, 12, 0, 33, 0, -1]}
]},
{"Name": "Woman-Domina", "Data": [
  {"Taxon": "Latin", "Segments": [23, 6, 26, 7, 13, 27]},
  {"Taxon": "French", "Segments": [23, 27, 26, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [23, 6, -1, -1, 38, 27]},
  {"Taxon": "Italian", "Segments": [23, 9, 13, -1, 13, 27]},
  {"Taxon": "PortugueseBrazil", "Segments": [23, 6, -1, -1, -1, 13, 29]},
  {"Taxon": "Portuguese", "Segments": [23, 6, -1, -1, 13, 29]},
  {"Taxon": "Catalan", "Segments": [23, 9, -1, -1, 13, 4]},
  {"Taxon": "Walloon", "Segments": [23, 30, 26, -1, -1, -1]},
```

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```
{
  "Taxon": "Friulian", "Segments": [23, 9, -1, -1, 13, 0]},
  "Taxon": "Romanian", "Segments": [23, 39, 26, -1, 13, 4]}
}],
{
  "Name": "ManHumanBeing", "Data": [
    {"Taxon": "Latin", "Segments": [40, 6, 26, 7, -1, 13, 0, 26]},
    {"Taxon": "French", "Segments": [-1, 9, 26, -1, -1, -1, -1, -1]},
    {"Taxon": "Spanish", "Segments": [6, 26, -1, 19, 28, 0, -1, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [6, 26, 41, -1, -1, -1, -1, -1]},
    {"Taxon": "Portuguese", "Segments": [9, 26, 41, -1, -1, -1, -1, -1]},
    {"Taxon": "Catalan", "Segments": [-1, 9, 26, 4, -1, -1, -1, -1]},
    {"Taxon": "Walloon", "Segments": [-1, 9, 26, -1, -1, -1, -1, -1]},
    {"Taxon": "Friulian", "Segments": [-1, 9, 26, -1, -1, -1, -1, -1]},
    {"Taxon": "Romanian", "Segments": [-1, 6, 26, -1, -1, -1, -1, -1]}
  ]
},
{
  "Name": "ManHumanBeing-Homo", "Data": [
    {"Taxon": "Latin", "Segments": [-1, 40, 6, 26, 2]},
    {"Taxon": "French", "Segments": [-1, 42, -1, -1, -1]},
    {"Taxon": "Italian", "Segments": [8, 9, 26, 6, -1]}
  ]
},
{
  "Name": "Child", "Data": [
    {"Taxon": "Latin", "Segments": [7, 13, 24, 27, 13, 20, 0, 26]},
    {"Taxon": "French", "Segments": [43, -1, 24, 43, -1, -1, -1, -1]},
    {"Taxon": "Spanish", "Segments": [7, 13, 24, 27, 13, 20, 0, -1]},
    {"Taxon": "Italian", "Segments": [-1, -1, 24, 27, 13, 20, 0, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [44, -1, 24, 45, -1, 46, 7, -1]},
    {"Taxon": "Portuguese", "Segments": [44, -1, 24, 45, -1, 20, 47, -1]},
    {"Taxon": "Walloon", "Segments": [31, -1, 24, 48, -1, -1, -1, -1]}
  ]
},
{
  "Name": "Child-Ninnus", "Data": [
    {"Taxon": "Spanish", "Segments": [13, 7, 38, 6]},
    {"Taxon": "Italian", "Segments": [13, 7, 13, 6]},
    {"Taxon": "PortugueseBrazil", "Segments": [13, 0, 13, 41]},
    {"Taxon": "Portuguese", "Segments": [13, 0, 13, 41]},
    {"Taxon": "Catalan", "Segments": [13, 0, 13, -1]}
  ]
},
{
  "Name": "Wife", "Data": [
    {"Taxon": "Latin", "Segments": [-1, 14, 49, 6, 13, 14, 27]},
    {"Taxon": "French", "Segments": [0, -1, 49, 15, -1, 50, -1]},
    {"Taxon": "Spanish", "Segments": [0, 14, 49, 6, -1, 14, 27]},
    {"Taxon": "Italian", "Segments": [-1, 14, 49, 9, -1, 50, 27]},
    {"Taxon": "PortugueseBrazil", "Segments": [7, 14, 49, 6, -1, 50, 27]},
    {"Taxon": "Portuguese", "Segments": [47, 16, 49, 6, -1, 50, 29]},
    {"Taxon": "Catalan", "Segments": [4, 14, 49, 9, -1, 50, 4]}
  ]
},
{
  "Name": "Wife-Mulier", "Data": [
    {"Taxon": "Latin", "Segments": [26, 15, 32, 7, 0, 33, -1]},
    {"Taxon": "Spanish", "Segments": [26, 15, 34, -1, 0, 28, -1]},
    {"Taxon": "Italian", "Segments": [26, 6, 35, 35, 0, -1, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [26, 15, 35, -1, 0, 36, -1]},
    {"Taxon": "Portuguese", "Segments": [26, 15, 35, -1, 0, 28, -1]},
    {"Taxon": "Catalan", "Segments": [26, 15, 35, -1, 0, -1, -1]},
    {"Taxon": "Friulian", "Segments": [26, 15, -1, 37, 33, -1, -1]},
    {"Taxon": "Romanian", "Segments": [26, 15, -1, 12, 0, 33, 0]}
  ]
}
```

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```
}},
{"Name": "Husband", "Data": [
  {"Taxon": "Latin", "Segments": [26, 27, 33, 37, 20, 15, 14]},
  {"Taxon": "French", "Segments": [26, 27, 36, 7, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [26, 27, 28, 7, 51, 6, -1]},
  {"Taxon": "Italian", "Segments": [26, 27, 33, 7, 20, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [26, 27, 28, 7, 23, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [26, 29, 28, 7, 51, 15, -1]},
  {"Taxon": "Catalan", "Segments": [26, 27, 28, 7, 20, -1, -1]},
  {"Taxon": "Friulian", "Segments": [26, 27, 33, 37, 20, -1, -1]},
  {"Taxon": "Romanian", "Segments": [26, 4, 33, 7, 20, -1, -1]}
]},
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  {"Taxon": "Latin", "Segments": [-1, 14, 49, 6, 13, 14, 15, 14]},
  {"Taxon": "French", "Segments": [0, -1, 49, 15, -1, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [0, 14, 49, 6, -1, 14, 6, -1]},
  {"Taxon": "Italian", "Segments": [-1, 14, 49, 9, -1, 50, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [7, 14, 49, 6, -1, 50, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [47, 16, 49, 6, -1, 50, 15, -1]},
  {"Taxon": "Catalan", "Segments": [4, 14, 49, 9, -1, 14, -1, -1]},
  {"Taxon": "Friulian", "Segments": [-1, 14, 49, 2, -1, 14, -1, -1]}
]},
{"Name": "Husband-Socius", "Data": [
  {"Taxon": "Latin", "Segments": [14, 6, 52, 7, 15, 14]},
  {"Taxon": "Italian", "Segments": [14, 9, 46, -1, 6, -1]},
  {"Taxon": "Romanian", "Segments": [14, 6, 53, -1, -1, -1]}
]},
{"Name": "Mother", "Data": [
  {"Taxon": "Latin", "Segments": [26, 54, 20, 33, 0, 26]},
  {"Taxon": "French", "Segments": [26, 0, -1, 36, -1, -1]},
  {"Taxon": "Spanish", "Segments": [26, 27, 51, 28, 0, -1]},
  {"Taxon": "Italian", "Segments": [26, 54, 23, 33, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [26, 55, -1, -1, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [26, 55, -1, -1, -1, -1]},
  {"Taxon": "Catalan", "Segments": [26, 27, -1, 28, 4, -1]},
  {"Taxon": "Walloon", "Segments": [26, 0, -1, 56, -1, -1]},
  {"Taxon": "Friulian", "Segments": [26, 57, -1, 33, 7, -1]}
]},
{"Name": "Fish-Piskem", "Data": [
  {"Taxon": "Latin", "Segments": [49, 7, 14, 52, 0, 26]},
  {"Taxon": "Spanish", "Segments": [49, 0, 58, -1, -1, -1]},
  {"Taxon": "Italian", "Segments": [49, 0, 16, 16, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [49, 59, 16, -1, 7, -1]},
  {"Taxon": "Portuguese", "Segments": [49, 60, 16, -1, 47, -1]},
  {"Taxon": "Catalan", "Segments": [49, 0, 16, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [49, 31, 14, -1, -1, -1]},
  {"Taxon": "Romanian", "Segments": [49, 0, 16, 20, 0, -1]}
]},
{"Name": "Fish-Pescion", "Data": [
  {"Taxon": "French", "Segments": [49, 8, 27, 14, 61]},
  {"Taxon": "Walloon", "Segments": [49, -1, 31, 40, 61]}
]},
{"Name": "Bird-Avem", "Data": [
```

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```
{
  "Taxon": "Latin", "Segments": [27, 8, 0, 26]},
  {"Taxon": "Spanish", "Segments": [27, 19, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [27, 18, 7, -1]},
  {"Taxon": "Portuguese", "Segments": [27, 18, 47, -1]},
  {"Taxon": "Catalan", "Segments": [27, 8, -1, -1]}
}],
{"Name": "Bird-Avicellum", "Data": [
  {"Taxon": "Latin", "Segments": [-1, 27, 8, 7, -1, 52, -1, 0, 32, 32, 15, 26]},
  {"Taxon": "French", "Segments": [8, 27, -1, -1, -1, 50, -1, 6, -1, -1, -1, -1]},
  {"Taxon": "Italian", "Segments": [-1, -1, 15, -1, 20, 46, -1, 31, 32, 32, 6, -1]},
  {"Taxon": "Catalan", "Segments": [-1, -1, 15, -1, -1, 14, -1, 0, -1, 35, -1, -1]},
  {"Taxon": "Walloon", "Segments": [-1, -1, 21, -1, -1, 40, -1, 62, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [-1, -1, 15, -1, -1, 46, 12, 31, -1, 32, -1, -1]}
]},
{"Name": "Bird-Passerem", "Data": [
  {"Taxon": "Latin", "Segments": [49, 27, 14, 14, 0, 33, 0, 26]},
  {"Taxon": "Spanish", "Segments": [49, 27, -1, 34, 27, 28, 6, -1]},
  {"Taxon": "Italian", "Segments": [49, 27, 14, 14, 0, 33, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [49, 27, -1, 14, 29, 28, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [49, 27, -1, 14, 29, 28, 15, -1]},
  {"Taxon": "Romanian", "Segments": [49, 27, -1, 14, 4, 28, 0, -1]}
]},
{"Name": "Fruit", "Data": [
  {"Taxon": "Latin", "Segments": [24, 33, 21, -1, 52, 20, 15, 14]},
  {"Taxon": "French", "Segments": [24, 36, 63, 7, -1, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [24, 28, 15, -1, -1, 20, 6, -1]},
  {"Taxon": "Italian", "Segments": [24, 33, 15, -1, 20, 20, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [24, 28, 15, -1, -1, 20, 29, -1]},
  {"Taxon": "Portuguese", "Segments": [24, 28, 15, -1, -1, 20, 29, -1]},
  {"Taxon": "Catalan", "Segments": [24, 28, 15, 12, -1, 20, -1, -1]},
  {"Taxon": "Walloon", "Segments": [24, 56, 22, -1, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [24, 33, 15, -1, -1, 20, -1, -1]},
  {"Taxon": "Romanian", "Segments": [24, 33, 15, -1, 52, 20, -1, -1]}
]},
{"Name": "Flower", "Data": [
  {"Taxon": "Latin", "Segments": [24, 32, 2, 33, 0, 26]},
  {"Taxon": "French", "Segments": [24, 32, 30, 36, -1, -1]},
  {"Taxon": "Spanish", "Segments": [24, 32, 6, 28, -1, -1]},
  {"Taxon": "Italian", "Segments": [24, 12, 2, 28, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [24, 32, 6, 36, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [24, 32, 6, 28, -1, -1]},
  {"Taxon": "Catalan", "Segments": [24, 32, 9, -1, -1, -1]},
  {"Taxon": "Walloon", "Segments": [24, 32, 64, 36, -1, -1]},
  {"Taxon": "Friulian", "Segments": [24, 32, 2, 33, -1, -1]},
  {"Taxon": "Romanian", "Segments": [24, 32, 39, 28, 0, -1]}
]},
{"Name": "Nose", "Data": [
  {"Taxon": "Latin", "Segments": [13, 54, 14, 15, 14]},
  {"Taxon": "French", "Segments": [13, 0, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [13, 27, 14, 6, -1]},
  {"Taxon": "Italian", "Segments": [13, 54, 14, 6, -1]},
  {"Taxon": "Catalan", "Segments": [13, 27, 14, -1, -1]},
  {"Taxon": "Walloon", "Segments": [13, 0, -1, -1, -1]},
```

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```
{
  "Taxon": "Friulian", "Segments": [13, 54, 14, -1, -1]},
  {"Taxon": "Romanian", "Segments": [13, 27, 14, -1, -1]}
]},
{"Name": "Nose-Nares", "Data": [
  {"Taxon": "Spanish", "Segments": [13, 27, 28, 7, 58, -1]},
  {"Taxon": "Italian", "Segments": [13, 27, 33, 7, 46, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [13, 27, 28, 7, 14, -1]},
  {"Taxon": "Portuguese", "Segments": [13, 29, 28, 7, 16, -1]},
  {"Taxon": "Catalan", "Segments": [13, 54, 33, 11, 14, -1]}
]},
{"Name": "Sun", "Data": [
  {"Taxon": "Latin", "Segments": [14, 2, 32, 0, 26]},
  {"Taxon": "Spanish", "Segments": [14, 6, 32, -1, -1]},
  {"Taxon": "Italian", "Segments": [14, 6, 32, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [14, 9, 8, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [14, 9, 65, -1, -1]},
  {"Taxon": "Catalan", "Segments": [14, 9, 32, -1, -1]},
  {"Taxon": "Walloon", "Segments": [14, 9, 32, 9, -1]},
  {"Taxon": "Romanian", "Segments": [14, 39, 28, 0, -1]}
]},
{"Name": "Sun-Solliculus", "Data": [
  {"Taxon": "Latin", "Segments": [14, 6, 32, 7, 66, 15, 32, 15, 14]},
  {"Taxon": "French", "Segments": [14, 9, 32, 67, -1, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [14, 6, 33, 0, -1, -1, 32, 7, -1]}
]},
{"Name": "Moon", "Data": [
  {"Taxon": "Latin", "Segments": [32, 21, 13, 27]},
  {"Taxon": "French", "Segments": [32, 22, 13, -1]},
  {"Taxon": "Spanish", "Segments": [32, 15, 13, 27]},
  {"Taxon": "Italian", "Segments": [32, 15, 13, 27]},
  {"Taxon": "PortugueseBrazil", "Segments": [32, 15, -1, 29]},
  {"Taxon": "Portuguese", "Segments": [32, 15, -1, 29]},
  {"Taxon": "Catalan", "Segments": [35, 15, 13, 4]},
  {"Taxon": "Walloon", "Segments": [32, 68, 13, -1]},
  {"Taxon": "Friulian", "Segments": [32, 15, 13, 0]},
  {"Taxon": "Romanian", "Segments": [32, 15, 13, 4]}
]},
{"Name": "Star", "Data": [
  {"Taxon": "Latin", "Segments": [-1, 14, 20, -1, 25, 32, 32, 27]},
  {"Taxon": "French", "Segments": [0, -1, 20, 8, 27, -1, 32, -1]},
  {"Taxon": "Spanish", "Segments": [0, 14, 20, 28, 0, -1, 5, 27]},
  {"Taxon": "Italian", "Segments": [-1, 14, 20, -1, 0, 32, 32, 27]},
  {"Taxon": "PortugueseBrazil", "Segments": [7, 14, 20, 28, 0, -1, 32, 29]},
  {"Taxon": "Portuguese", "Segments": [47, 16, 20, 28, 0, -1, 32, 29]},
  {"Taxon": "Catalan", "Segments": [4, 14, 20, -1, 31, -1, 32, -1]},
  {"Taxon": "Walloon", "Segments": [-1, 14, 20, -1, 64, -1, 32, -1]},
  {"Taxon": "Friulian", "Segments": [-1, 14, 20, -1, 31, -1, 32, 0]},
  {"Taxon": "Romanian", "Segments": [-1, 14, 20, -1, 69, -1, -1, -1]}
]},
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  {"Taxon": "Latin", "Segments": [27, -1, 70, -1, 27]},
  {"Taxon": "French", "Segments": [6, -1, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [27, -1, 71, 8, 27]},
```

## Appendix 2 - Tongue Twister Configuration

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```
{
  "Taxon": "Italian", "Segments": [27, 52, 52, 8, 27]},
  {"Taxon": "PortugueseBrazil", "Segments": [27, -1, 1, 8, 29]},
  {"Taxon": "Portuguese", "Segments": [27, -1, 1, 8, 29]},
  {"Taxon": "Catalan", "Segments": [72, -1, 71, 8, 4]},
  {"Taxon": "Walloon", "Segments": [62, -1, -1, 8, -1]},
  {"Taxon": "Friulian", "Segments": [27, -1, 73, -1, 0]},
  {"Taxon": "Romanian", "Segments": [27, -1, 49, -1, 4]}
}],
{"Name": "Rain", "Data": [
  {"Taxon": "Latin", "Segments": [49, 32, 15, -1, 8, 7, 27]},
  {"Taxon": "French", "Segments": [49, 32, 63, -1, -1, 7, -1]},
  {"Taxon": "Spanish", "Segments": [5, -1, 15, -1, 19, 12, 27]},
  {"Taxon": "Italian", "Segments": [49, 12, 6, 23, 10, -1, 27]},
  {"Taxon": "PortugueseBrazil", "Segments": [16, -1, 15, -1, 18, -1, 29]},
  {"Taxon": "Portuguese", "Segments": [16, -1, 15, -1, 18, -1, 29]},
  {"Taxon": "Catalan", "Segments": [49, 32, 15, -1, 3, -1, 4]},
  {"Taxon": "Walloon", "Segments": [49, 32, 21, -1, 36, -1, -1]},
  {"Taxon": "Friulian", "Segments": [49, 32, 6, -1, -1, 12, 0]},
  {"Taxon": "Romanian", "Segments": [49, 32, 39, -1, -1, 12, 0]}
]},
{"Name": "Lake", "Data": [
  {"Taxon": "Latin", "Segments": [32, 27, 52, 15, 26]},
  {"Taxon": "French", "Segments": [32, 27, 52, -1, -1]},
  {"Taxon": "Spanish", "Segments": [32, 27, 73, 6, -1]},
  {"Taxon": "Italian", "Segments": [32, 27, 1, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [32, 27, 1, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [32, 27, 71, 15, -1]},
  {"Taxon": "Catalan", "Segments": [35, 27, 52, -1, -1]},
  {"Taxon": "Walloon", "Segments": [32, 27, 52, -1, -1]},
  {"Taxon": "Friulian", "Segments": [32, 54, 20, -1, -1]},
  {"Taxon": "Romanian", "Segments": [32, 27, 52, -1, -1]}
]},
{"Name": "Sea", "Data": [
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  {"Taxon": "French", "Segments": [26, 31, 36, -1]},
  {"Taxon": "Spanish", "Segments": [26, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [26, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [26, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [26, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [26, 27, 33, -1]},
  {"Taxon": "Walloon", "Segments": [26, 0, 36, -1]},
  {"Taxon": "Friulian", "Segments": [26, 54, 33, -1]},
  {"Taxon": "Romanian", "Segments": [26, 27, 33, 0]}
]},
{"Name": "Salt", "Data": [
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  {"Taxon": "French", "Segments": [14, 31, 32, -1, -1]},
  {"Taxon": "Spanish", "Segments": [14, 27, 32, -1, -1]},
  {"Taxon": "Italian", "Segments": [14, 27, 32, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [14, 27, 8, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [14, 27, 32, -1, -1]},
  {"Taxon": "Catalan", "Segments": [14, 27, 32, -1, -1]},
  {"Taxon": "Walloon", "Segments": [14, 0, -1, -1, -1]},
```



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```
{
  "Taxon": "Friulian", "Segments": [14, 54, 32, -1, -1]},
  {"Taxon": "Romanian", "Segments": [14, 27, 33, 0, -1]}
]},
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  {"Taxon": "Latin", "Segments": [20, -1, 0, 33, 33, 27]},
  {"Taxon": "French", "Segments": [20, -1, 0, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [20, 12, 0, -1, 33, 27]},
  {"Taxon": "Italian", "Segments": [20, -1, 31, 33, 33, 27]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, -1, 0, -1, 36, 29]},
  {"Taxon": "Portuguese", "Segments": [20, -1, 31, -1, 36, 29]},
  {"Taxon": "Catalan", "Segments": [20, -1, 31, -1, 33, 4]},
  {"Taxon": "Walloon", "Segments": [20, -1, 62, -1, 36, -1]},
  {"Taxon": "Friulian", "Segments": [20, 12, 31, -1, 33, 0]},
  {"Taxon": "Romanian", "Segments": [53, -1, 27, -1, 33, 4]}
]},
{"Name": "Fog", "Data": [
  {"Taxon": "Latin", "Segments": [52, 54, 32, 37, 1, 7, 13, 0, 26]},
  {"Taxon": "Spanish", "Segments": [52, 27, 32, 7, -1, -1, 13, 27, -1]},
  {"Taxon": "Italian", "Segments": [52, 27, 32, 7, 10, 7, 13, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, 27, 32, 7, 3, 41, -1, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [52, 29, 32, 7, 3, 55, -1, -1, -1]}
]},
{"Name": "Fog-Nebula", "Data": [
  {"Taxon": "Latin", "Segments": [13, -1, 0, -1, 19, 15, 32, 27]},
  {"Taxon": "French", "Segments": [13, 12, 9, -1, -1, -1, 32, 22]},
  {"Taxon": "Spanish", "Segments": [13, 12, 0, -1, 19, -1, 32, 27]},
  {"Taxon": "Italian", "Segments": [13, -1, 0, 19, 19, -1, 12, 27]},
  {"Taxon": "PortugueseBrazil", "Segments": [13, -1, 31, -1, 18, 8, -1, 29]},
  {"Taxon": "Portuguese", "Segments": [13, -1, 31, -1, 18, 8, -1, 29]},
  {"Taxon": "Catalan", "Segments": [13, -1, 0, -1, -1, 8, 32, 4]},
  {"Taxon": "Romanian", "Segments": [13, 0, 1, 15, 33, 4, -1, -1]}
]},
{"Name": "Fog-Tenebrae", "Data": [
  {"Taxon": "Latin", "Segments": [20, 0, 13, 25, 19, 33, 72]},
  {"Taxon": "Italian", "Segments": [20, 62, 13, 0, 19, 33, 0]}
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{"Name": "Fog-Tenebras", "Data": [
  {"Taxon": "Latin", "Segments": [20, -1, 0, 13, -1, 25, 19, 33, 54, 14]},
  {"Taxon": "French", "Segments": [20, -1, 0, 13, -1, 31, 19, 36, -1, -1]},
  {"Taxon": "Spanish", "Segments": [20, -1, 7, 13, 12, 0, 19, 32, 27, 14]},
  {"Taxon": "Italian", "Segments": [20, -1, 62, 13, -1, 0, 19, 33, 0, -1]},
  {"Taxon": "Portuguese", "Segments": [20, 28, -1, -1, -1, 31, 18, -1, 29, 16]},
  {"Taxon": "Catalan", "Segments": [20, -1, 4, 13, -1, 0, 19, 28, 4, 14]}
]},
{"Name": "Fog-Fumata", "Data": [
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  {"Taxon": "French", "Segments": [24, 22, 26, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [24, 15, 26, 27, 20, 27]},
  {"Taxon": "Italian", "Segments": [24, 15, 26, 54, 20, 27]},
  {"Taxon": "PortugueseBrazil", "Segments": [24, 15, 26, 27, 14, 29]},
  {"Taxon": "Portuguese", "Segments": [24, 15, 26, 27, 14, 29]},
  {"Taxon": "Friulian", "Segments": [24, 15, 26, 27, 20, 0]}
]},
```

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```
{
  "Name": "Fog-Caecia", "Data": [
    {"Taxon": "Latin", "Segments": [52, 72, 52, 7, 27]},
    {"Taxon": "Romanian", "Segments": [46, 69, 46, -1, 4]}
  ]},
{
  "Name": "Sky", "Data": [
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    {"Taxon": "French", "Segments": [14, 12, 31, 32, -1, -1]},
    {"Taxon": "Spanish", "Segments": [58, 12, 0, 32, 6, -1]},
    {"Taxon": "Italian", "Segments": [46, -1, 31, 32, 6, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [14, -1, 31, 8, -1, -1]},
    {"Taxon": "Portuguese", "Segments": [14, -1, 31, 8, -1, -1]},
    {"Taxon": "Catalan", "Segments": [14, -1, 31, 32, -1, -1]},
    {"Taxon": "Walloon", "Segments": [14, -1, 37, 36, -1, -1]},
    {"Taxon": "Friulian", "Segments": [46, -1, 37, 32, -1, -1]},
    {"Taxon": "Romanian", "Segments": [46, -1, 0, 28, -1, -1]}
  ]},
{
  "Name": "Wind", "Data": [
    {"Taxon": "Latin", "Segments": [8, -1, 0, 13, 20, 15, 26]},
    {"Taxon": "French", "Segments": [18, -1, 43, -1, -1, -1, -1]},
    {"Taxon": "Spanish", "Segments": [19, 12, 0, 13, 20, 6, -1]},
    {"Taxon": "Italian", "Segments": [18, -1, 31, 13, 20, 6, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [18, -1, 74, -1, 20, 15, -1]},
    {"Taxon": "Portuguese", "Segments": [18, -1, 74, -1, 20, 15, -1]},
    {"Taxon": "Catalan", "Segments": [19, -1, 0, 13, -1, -1, -1]},
    {"Taxon": "Walloon", "Segments": [18, -1, 74, -1, -1, -1, -1]},
    {"Taxon": "Friulian", "Segments": [18, -1, 7, 13, 20, -1, -1]},
    {"Taxon": "Romanian", "Segments": [18, -1, 47, 13, 20, -1, -1]}
  ]},
{
  "Name": "Fire-Focus", "Data": [
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    {"Taxon": "French", "Segments": [24, -1, 68, -1, -1, -1]},
    {"Taxon": "Spanish", "Segments": [24, 8, 0, 1, 6, -1]},
    {"Taxon": "Italian", "Segments": [24, 8, 9, 52, 6, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [24, -1, 6, 1, 15, -1]},
    {"Taxon": "Portuguese", "Segments": [24, -1, 6, 71, 15, -1]},
    {"Taxon": "Catalan", "Segments": [24, -1, 9, 52, -1, -1]},
    {"Taxon": "Walloon", "Segments": [24, -1, 64, -1, -1, -1]},
    {"Taxon": "Friulian", "Segments": [24, -1, 21, 52, -1, -1]},
    {"Taxon": "Romanian", "Segments": [24, -1, 6, 52, -1, -1]}
  ]},
{
  "Name": "Year", "Data": [
    {"Taxon": "Latin", "Segments": [27, 13, 13, 15, 26]},
    {"Taxon": "French", "Segments": [43, -1, -1, -1, -1]},
    {"Taxon": "Spanish", "Segments": [27, -1, 38, 6, -1]},
    {"Taxon": "Italian", "Segments": [27, 13, 13, 6, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [29, -1, 13, 15, -1]},
    {"Taxon": "Portuguese", "Segments": [29, -1, 13, 15, -1]},
    {"Taxon": "Catalan", "Segments": [27, -1, 38, -1, -1]},
    {"Taxon": "Walloon", "Segments": [48, -1, -1, -1, -1]},
    {"Taxon": "Friulian", "Segments": [27, -1, 75, -1, -1]},
    {"Taxon": "Romanian", "Segments": [27, 13, -1, -1, -1]}
  ]},
{
  "Name": "Name-Nomen", "Data": [
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```
{
  "Taxon": "Latin", "Segments": [13, 2, 26, 0, 13]},
  {"Taxon": "French", "Segments": [13, 42, -1, -1, -1]},
  {"Taxon": "Italian", "Segments": [13, 2, 26, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [13, 6, 26, 7, -1]},
  {"Taxon": "Portuguese", "Segments": [13, 6, 26, 47, -1]},
  {"Taxon": "Catalan", "Segments": [13, 9, 26, -1, -1]},
  {"Taxon": "Walloon", "Segments": [13, 61, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [13, 9, 75, -1, -1]},
  {"Taxon": "Romanian", "Segments": [13, 15, 26, 0, -1]}
]},
{"Name": "Name-Nominem", "Data": [
  {"Taxon": "Latin", "Segments": [13, 2, 26, 7, 13, -1, 0, 26]},
  {"Taxon": "Spanish", "Segments": [13, 6, 26, -1, 19, 28, 0, -1]}
]},
{"Name": "Tongue", "Data": [
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  {"Taxon": "French", "Segments": [32, 43, -1, 1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [32, 0, 75, 1, 8, 27]},
  {"Taxon": "Italian", "Segments": [32, 7, 13, 1, 8, 27]},
  {"Taxon": "PortugueseBrazil", "Segments": [32, 44, -1, 1, 8, 29]},
  {"Taxon": "Portuguese", "Segments": [32, 44, -1, 1, 8, 29]},
  {"Taxon": "Walloon", "Segments": [32, 77, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [32, 31, 13, 73, -1, 31]},
  {"Taxon": "Romanian", "Segments": [32, 7, 26, 19, -1, 4]}
]},
{"Name": "ToDrink", "Data": [
  {"Taxon": "Latin", "Segments": [19, 7, 19, -1, 0, 33, 0]},
  {"Taxon": "French", "Segments": [19, -1, -1, 8, 78, 36, -1]},
  {"Taxon": "Spanish", "Segments": [19, 0, 19, -1, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [19, 0, -1, -1, -1, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [19, 0, 19, -1, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [19, 47, 79, -1, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [19, 31, 8, -1, -1, 28, 4]},
  {"Taxon": "Walloon", "Segments": [19, -1, -1, -1, 64, 36, -1]},
  {"Taxon": "Friulian", "Segments": [19, 0, 18, 7, -1, -1, -1]},
  {"Taxon": "Romanian", "Segments": [19, -1, -1, -1, 69, -1, -1]}
]},
{"Name": "ToEat", "Data": [
  {"Taxon": "Latin", "Segments": [52, 6, 26, 0, 23, 0, 33, 0]},
  {"Taxon": "Spanish", "Segments": [52, 6, 26, 0, -1, -1, 28, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, 6, 26, 0, -1, -1, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [52, 15, 26, -1, -1, 0, 28, -1]}
]},
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  {"Taxon": "Latin", "Segments": [26, 27, 13, 23, 15, 52, 54, 33, 0]},
  {"Taxon": "French", "Segments": [26, 43, -1, 3, -1, -1, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [26, 27, 13, 23, 15, 52, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [26, 27, 13, 10, -1, -1, 27, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [26, 45, -1, 3, -1, -1, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [26, 45, -1, 3, -1, -1, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [26, 4, 38, 3, -1, -1, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [26, 27, 38, -1, -1, -1, 37, -1, -1]},
  {"Taxon": "Friulian", "Segments": [26, 27, 75, 80, -1, -1, 54, -1, -1]},
  {"Taxon": "Romanian", "Segments": [26, 27, 75, 80, -1, -1, 54, -1, -1]}
]}
```

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```
{
  "Taxon": "Romanian", "Segments": [26, 47, 13, -1, -1, 52, 27, -1, -1]}
}},
{"Name": "ToBite", "Data": [
  {"Taxon": "Latin", "Segments": [26, -1, 6, 33, 23, 25, 33, 0]},
  {"Taxon": "French", "Segments": [26, -1, 6, 36, 23, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [26, -1, 6, 28, 51, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [26, -1, 9, 33, 23, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [26, -1, 6, 36, 23, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [26, -1, 15, 28, 51, 0, 28, -1]},
  {"Taxon": "Friulian", "Segments": [26, 8, 27, 33, 23, 7, -1, -1]}
}},
{"Name": "ToBite-Morsicare", "Data": [
  {"Taxon": "Latin", "Segments": [26, 6, 33, 14, 7, 52, 54, 33, 0]},
  {"Taxon": "Spanish", "Segments": [26, 6, -1, 14, -1, 52, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [26, 6, 33, 14, 7, 52, 27, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [26, 15, -1, 14, 4, 1, 27, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [26, 15, -1, 14, 4, 1, 27, 33, -1]},
  {"Taxon": "Catalan", "Segments": [26, 15, -1, 14, 4, 71, 27, -1, -1]},
  {"Taxon": "Romanian", "Segments": [26, 15, 33, 14, 0, 52, 27, -1, -1]}
}},
{"Name": "ToSuck", "Data": [
  {"Taxon": "Latin", "Segments": [14, 21, 1, 0, 33, 0]},
  {"Taxon": "French", "Segments": [14, 22, 14, 0, -1, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [14, 15, 1, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [14, 15, 1, 27, 28, -1]},
  {"Taxon": "Walloon", "Segments": [14, 22, 14, 37, -1, -1]},
  {"Taxon": "Friulian", "Segments": [66, 15, 66, 54, -1, -1]},
  {"Taxon": "Romanian", "Segments": [14, 15, 10, 0, -1, -1]}
}},
{"Name": "ToSpit", "Data": [
  {"Taxon": "Latin", "Segments": [52, 6, 13, 14, 49, 15, 0, 33, 0]},
  {"Taxon": "French", "Segments": [52, 42, -1, 14, 49, 22, 0, -1, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, 15, -1, 14, 49, 7, 36, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [52, 15, -1, 16, 49, 7, 28, -1, -1]}
}},
{"Name": "ToSpit-Exconspuere", "Data": [
  {"Taxon": "Spanish", "Segments": [0, 14, 52, 15, -1, 49, 7, 28]},
  {"Taxon": "Catalan", "Segments": [4, 14, 52, 15, -1, 49, 7, -1]},
  {"Taxon": "Romanian", "Segments": [-1, 14, 52, 15, 12, 49, 27, -1]}
}},
{"Name": "ToSpit-Sputare", "Data": [
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  {"Taxon": "Spanish", "Segments": [0, 14, 49, 15, 20, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [-1, 14, 49, 15, 20, 27, 28, 0]},
  {"Taxon": "Friulian", "Segments": [14, 49, 15, 23, 54, -1, -1, -1]}
}},
{"Name": "ToKnow", "Data": [
  {"Taxon": "Latin", "Segments": [14, 52, 37, 33, 0]},
  {"Taxon": "Romanian", "Segments": [16, 20, 7, -1, -1]}
}},
{"Name": "ToKnow-Sapere", "Data": [
  {"Taxon": "Latin", "Segments": [14, 27, 49, -1, 0, 33, 0]},
  {"Taxon": "French", "Segments": [14, 27, 18, 8, 27, 36, -1]},
```

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```
{
  "Taxon": "Spanish", "Segments": [14, 27, 19, -1, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [14, 27, 49, -1, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [14, 27, 19, -1, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [14, 29, 19, -1, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [14, 4, 79, -1, 31, -1, -1]},
  {"Taxon": "Walloon", "Segments": [14, 27, 18, -1, 64, 56, -1]},
  {"Taxon": "Friulian", "Segments": [14, 27, 18, -1, 25, -1, -1]}
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{
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  {"Taxon": "French", "Segments": [52, 36, 74, -1, 23, -1, 36, -1]},
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  {"Taxon": "Walloon", "Segments": [23, 8, 27, 36, 26, 7, -1, -1]},
  {"Taxon": "Friulian", "Segments": [23, -1, 15, 33, 26, 37, -1, -1]},
  {"Taxon": "Romanian", "Segments": [23, -1, 6, 33, 26, 7, -1, -1]}
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  {"Taxon": "Catalan", "Segments": [13, -1, 4, 1, 27, -1, -1]},
  {"Taxon": "Romanian", "Segments": [13, -1, 0, 52, 27, -1, -1]}
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```
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  {"Taxon": "Friulian", "Segments": [26, 27, 82, -1, 54, -1, -1]}
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  {"Taxon": "Catalan", "Segments": [15, 52, 14, 7, -1, -1, -1, -1]},
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  {"Taxon": "Italian", "Segments": [49, 15, 38, 38, 27, 33, 0]},
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  {"Taxon": "Portuguese", "Segments": [19, 29, -1, 20, -1, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [19, 27, -1, 20, -1, -1, 28, 4]},
  {"Taxon": "Walloon", "Segments": [19, 27, 20, -1, 0, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [19, 27, 20, -1, 7, -1, -1, -1]},
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  {"Taxon": "Portuguese", "Segments": [52, 29, -1, 14, -1, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [52, 4, -1, 14, -1, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [46, 31, -1, 14, -1, 37, -1, -1]},
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  {"Taxon": "Italian", "Segments": [33, 27, 23, 0, 33, 0]},
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```
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  {"Taxon": "Catalan", "Segments": [33, 27, 8, -1, 28, 4]},
  {"Taxon": "Friulian", "Segments": [33, 27, 23, 54, -1, -1]},
  {"Taxon": "Romanian", "Segments": [33, 27, 23, 0, -1, -1]}
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  {"Taxon": "Italian", "Segments": [33, 27, 14, 27, 33, 0]},
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  {"Taxon": "Catalan", "Segments": [33, 4, 14, 52, 27, -1]}
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  {"Taxon": "PortugueseBrazil", "Segments": [13, -1, 27, 23, 27, 36, -1]},
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  {"Taxon": "PortugueseBrazil", "Segments": [13, 27, 18, 47, 71, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [13, 29, 18, 47, 71, 27, 28, -1]},
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  {"Taxon": "Friulian", "Segments": [13, 27, 18, 7, 73, 54, -1, -1]},
  {"Taxon": "Romanian", "Segments": [13, 27, 18, 7, 1, 27, -1, -1]}
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  {"Taxon": "Spanish", "Segments": [19, 6, 32, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [18, 6, 32, 27, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [18, 6, -1, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [18, 8, -1, 27, 28, -1]},
```



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```
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  {"Taxon": "Walloon", "Segments": [18, 9, 32, 0, -1, -1]}
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  {"Taxon": "Friulian", "Segments": [50, 18, 6, 32, 54, -1, -1]},
  {"Taxon": "Romanian", "Segments": [50, 19, 15, 28, 27, -1, -1]}
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  {"Taxon": "Italian", "Segments": [52, 27, 26, 26, 7, 13, 27, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, 29, 26, 7, 38, 27, 36, -1, -1]},
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  {"Taxon": "Walloon", "Segments": [46, 7, 26, 7, 13, 0, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [46, 12, 27, 26, 7, 13, 27, -1, -1]}
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  {"Taxon": "Italian", "Segments": [26, 31, 33, 10, 0, 33, 0]},
  {"Taxon": "Romanian", "Segments": [26, 0, 33, 10, 0, -1, -1]}
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  {"Taxon": "French", "Segments": [18, 4, 13, 7, 36, -1]},
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  {"Taxon": "Italian", "Segments": [18, 0, 13, 7, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [18, -1, -1, 7, 36, -1]},
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  {"Taxon": "Friulian", "Segments": [18, 7, 38, 37, -1, -1]},
  {"Taxon": "Romanian", "Segments": [18, 0, 13, 7, -1, -1]}
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  {"Taxon": "Spanish", "Segments": [0, 52, 14, 20, 0, 13, 23, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [0, -1, 14, 20, 31, 13, 23, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [7, 14, 20, 74, -1, 23, 0, 36, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [7, 16, 20, 74, -1, 23, 0, 28, -1, -1]},
```

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```
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  "Taxon": "Romanian", "Segments": [0, 52, 14, 20, 7, 13, 23, 0, -1, -1]}
}],
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    {"Taxon": "Spanish", "Segments": [5, 27, -1, 58, 0, 28, -1]},
    {"Taxon": "Italian", "Segments": [10, 27, -1, 46, 25, 28, 0]},
    {"Taxon": "PortugueseBrazil", "Segments": [3, 29, -1, 50, 0, 36, -1]},
    {"Taxon": "Portuguese", "Segments": [3, 29, -1, 50, 0, 28, -1]},
    {"Taxon": "Catalan", "Segments": [3, 27, 8, -1, -1, 28, 4]},
    {"Taxon": "Walloon", "Segments": [10, 0, -1, -1, 33, 0, -1]},
    {"Taxon": "Friulian", "Segments": [12, 0, -1, 14, 7, -1, -1]},
    {"Taxon": "Romanian", "Segments": [50, 4, -1, 46, 69, -1, -1]}
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    {"Taxon": "PortugueseBrazil", "Segments": [14, -1, 0, -1, -1, 36, -1]},
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    {"Taxon": "PortugueseBrazil", "Segments": [14, 74, -1, -1, -1, 20, 27, 28, -1]},
    {"Taxon": "Portuguese", "Segments": [14, 74, -1, -1, -1, 20, 27, 28, -1]},
    {"Taxon": "Friulian", "Segments": [14, 0, -1, -1, 13, 20, 54, -1, -1]}
  ],
  "Name": "ToStand", "Data": [
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    {"Taxon": "French", "Segments": [31, -1, 20, -1, 36, -1]},
    {"Taxon": "Spanish", "Segments": [0, 14, 20, 27, 28, -1]},
    {"Taxon": "Italian", "Segments": [-1, 14, 20, 27, 33, 0]},
    {"Taxon": "PortugueseBrazil", "Segments": [47, 16, 20, 27, 28, -1]},
    {"Taxon": "Portuguese", "Segments": [47, 16, 20, 27, 28, -1]},
    {"Taxon": "Catalan", "Segments": [4, 14, 20, 27, -1, -1]},
    {"Taxon": "Walloon", "Segments": [31, 14, -1, -1, -1, -1]},
    {"Taxon": "Friulian", "Segments": [-1, 14, 20, 54, -1, -1]},
    {"Taxon": "Romanian", "Segments": [-1, 14, 20, 27, -1, -1]}
  ],
  "Name": "ToStand-Levare", "Data": [
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    {"Taxon": "French", "Segments": [32, 4, 18, 0, -1, -1]},
    {"Taxon": "Spanish", "Segments": [5, 0, 19, 27, 28, -1]},
    {"Taxon": "Italian", "Segments": [32, 0, 18, 27, 33, 0]},
    {"Taxon": "PortugueseBrazil", "Segments": [32, 0, 18, 27, 36, -1]},
    {"Taxon": "Portuguese", "Segments": [32, 47, 18, 27, 28, -1]},
    {"Taxon": "Catalan", "Segments": [35, 4, 19, 27, -1, -1]},
    {"Taxon": "Walloon", "Segments": [32, 4, 18, 0, -1, -1]},
    {"Taxon": "Friulian", "Segments": [32, 0, 18, 54, -1, -1]},
  ]
}
```

## Appendix 2 - Tongue Twister Configuration

---

```
{
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  {"Taxon": "Spanish", "Segments": [-1, 27, 32, 58, -1, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [-1, 27, 32, 53, 27, 33, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [-1, 27, 65, 14, -1, 27, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [-1, 27, 65, 14, -1, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [-1, 4, 32, 14, -1, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [40, 84, -1, 14, -1, 37, -1, -1]},
  {"Taxon": "Friulian", "Segments": [-1, 27, 32, 20, 16, -1, 54, -1]}
}},
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  {"Taxon": "French", "Segments": [20, 15, 36, 13, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [20, 6, 28, 13, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [20, 6, 33, 13, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 6, 36, 13, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [20, 15, 28, 13, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [20, 15, 33, 13, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [20, 21, 33, 13, 0, -1, -1]},
  {"Taxon": "Friulian", "Segments": [20, 6, 33, 13, 54, -1, -1]},
  {"Taxon": "Romanian", "Segments": [20, 15, 33, 13, 27, -1, -1]}
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  {"Taxon": "French", "Segments": [3, 7, 36, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [34, 7, 28, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [10, 7, 33, 27, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [3, 7, 28, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [3, 7, 28, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [3, 7, 28, 27, -1, -1]},
  {"Taxon": "Friulian", "Segments": [10, 7, 33, 54, -1, -1]}
}},
{"Name": "ToTurnIntransitive-AncestralClass3", "Data": [
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  {"Taxon": "Spanish", "Segments": [19, 7, 28, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [18, 7, 33, 27, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [18, 7, 28, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [3, 7, 28, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [19, 7, 28, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [18, 7, 36, 0, -1, -1]},
  {"Taxon": "Friulian", "Segments": [10, 7, 33, 54, -1, -1]}
}},
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  {"Taxon": "French", "Segments": [20, 9, 36, 23, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [20, 6, 28, 58, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [20, 9, 33, 46, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 15, 33, 14, 0, 33, -1]},
  {"Taxon": "Portuguese", "Segments": [20, 15, 33, 14, 0, 33, -1]},
  {"Taxon": "Catalan", "Segments": [20, 9, 33, 14, 4, -1, -1]},
```

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```
{
  "Taxon": "Romanian", "Segments": [20, 39, 33, 46, 0, -1, -1]}
}},
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  {"Taxon": "French", "Segments": [16, 8, 27, -1, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [52, -1, 27, -1, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [52, -1, 27, 23, 0, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, -1, 29, -1, 7, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [52, -1, 29, -1, 7, 28, -1]},
  {"Taxon": "Catalan", "Segments": [52, -1, 27, 8, -1, 33, 4]},
  {"Taxon": "Walloon", "Segments": [46, -1, 62, -1, -1, 56, -1]},
  {"Taxon": "Friulian", "Segments": [46, 12, 27, 23, 0, -1, -1]},
  {"Taxon": "Romanian", "Segments": [52, 4, 23, 69, -1, -1, -1]}
}},
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  {"Taxon": "Spanish", "Segments": [20, 15, 26, 19, 27, 28]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 61, -1, 19, 27, 36]},
  {"Taxon": "Portuguese", "Segments": [20, 61, -1, 19, 27, 28]},
  {"Taxon": "Catalan", "Segments": [20, 15, 26, 19, 27, -1]},
  {"Taxon": "Walloon", "Segments": [20, 15, 26, -1, 0, -1]},
  {"Taxon": "Romanian", "Segments": [20, 15, 26, 19, 27, -1]}
}},
{"Name": "ToHold", "Data": [
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  {"Taxon": "French", "Segments": [20, 4, 13, -1, 7, 36, -1]},
  {"Taxon": "Spanish", "Segments": [20, 0, 13, -1, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [20, 0, 13, -1, 0, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 0, -1, -1, -1, -1, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [20, 0, -1, -1, -1, 28, -1]},
  {"Taxon": "Catalan", "Segments": [20, 4, 13, -1, 7, -1, -1]},
  {"Taxon": "Walloon", "Segments": [20, 7, 13, -1, 7, -1, -1]},
  {"Taxon": "Friulian", "Segments": [20, 7, 13, 12, 7, -1, -1]},
  {"Taxon": "Romanian", "Segments": [53, 7, 13, -1, 0, -1, -1]}
}},
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  {"Taxon": "PortugueseBrazil", "Segments": [14, 47, 1, 15, 28, 27, 36]},
  {"Taxon": "Portuguese", "Segments": [14, 47, 71, 15, 28, 27, 28]}
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  {"Taxon": "Spanish", "Segments": [0, 52, 14, 49, 28, 0, 26, -1, 7, 28, -1]},
  {"Taxon": "Italian", "Segments": [-1, -1, 14, 49, 33, 31, 26, -1, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [7, -1, 16, 49, 33, 4, 26, -1, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [7, -1, 16, 49, 33, 4, 26, -1, 0, 33, -1]},
  {"Taxon": "Catalan", "Segments": [4, -1, 14, 49, 28, 0, 26, -1, 4, -1, -1]},
  {"Taxon": "Friulian", "Segments": [0, -1, 14, 49, 33, 7, 26, -1, 7, -1, -1]},
  {"Taxon": "Romanian", "Segments": [-1, 14, 52, -1, 33, 0, 26, 0, -1, -1, -1]}
}},
{"Name": "ToSqueeze-Serrere", "Data": [
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```

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```
{
  "Taxon": "Spanish", "Segments": [14, 0, -1, 33, 27, 28, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [14, 0, -1, 36, 27, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [14, 4, -1, 56, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [14, 4, -1, 33, 27, -1, -1]}
}],
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  {"Taxon": "French", "Segments": [14, 0, -1, 36, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [58, 0, -1, 33, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [14, 0, 33, 33, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [14, 47, -1, 36, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [14, 47, -1, 36, 27, 28, -1]},
  {"Taxon": "Walloon", "Segments": [14, 31, -1, 56, 0, -1, -1]}
]},
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  {"Taxon": "Spanish", "Segments": [27, -1, 49, -1, -1, 28, 0, 20, 27, 28, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [29, -1, 49, 47, -1, 28, -1, 20, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [29, -1, 49, 47, -1, 28, -1, 20, 27, 28, -1]}
]},
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  {"Taxon": "French", "Segments": [0, -1, 20, 36, 81, -1, 23, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [0, 14, 20, 28, 0, 38, -1, 7, 28, -1]},
  {"Taxon": "Italian", "Segments": [-1, 14, 20, 33, 7, 13, 10, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [4, 16, 20, 33, 44, -1, 3, 7, 33, -1]},
  {"Taxon": "Portuguese", "Segments": [4, 16, 20, 33, 44, 3, 7, 33, -1, -1]},
  {"Taxon": "Catalan", "Segments": [4, 14, 20, 28, 31, 38, 4, -1, -1, -1]},
  {"Taxon": "Walloon", "Segments": [14, 20, 33, 7, 13, 73, 0, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [14, 20, 33, 31, 13, 73, 37, -1, -1, -1]},
  {"Taxon": "Romanian", "Segments": [14, 20, 33, 47, 13, 10, 0, -1, -1, -1]}
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  {"Taxon": "French", "Segments": [24, 36, 67, 0, -1, -1, -1]},
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  {"Taxon": "Italian", "Segments": [24, 33, 0, 73, 27, 33, 0]},
  {"Taxon": "Catalan", "Segments": [24, 28, 4, 1, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [24, 33, 17, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [24, 33, 0, -1, 27, -1, -1]},
  {"Taxon": "Romanian", "Segments": [24, 33, 0, 52, 27, -1, -1]}
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  {"Taxon": "Portuguese", "Segments": [47, 16, 24, 28, 47, 71, 27, 28]}
]},
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  {"Taxon": "French", "Segments": [24, 36, 6, 20, 0, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [24, 28, 6, 20, 27, 28, -1, -1]},
  {"Taxon": "Italian", "Segments": [24, 33, 0, 20, 20, 27, 33, 0]},
  {"Taxon": "Walloon", "Segments": [24, 36, 6, 20, 0, -1, -1, -1]}
]},
```

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```
{
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    {"Taxon": "Catalan", "Segments": [24, 28, 4, 14, 27, -1]}
  ]},
{
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    {"Taxon": "French", "Segments": [32, 27, 18, 0, -1, -1]},
    {"Taxon": "Spanish", "Segments": [32, 27, 79, 27, 28, -1]},
    {"Taxon": "Italian", "Segments": [32, 27, 18, 27, 33, 0]},
    {"Taxon": "PortugueseBrazil", "Segments": [32, 29, 18, 27, 28, -1]},
    {"Taxon": "Portuguese", "Segments": [32, 29, 18, 27, 28, -1]},
    {"Taxon": "Catalan", "Segments": [35, 4, 19, 27, -1, -1]},
    {"Taxon": "Walloon", "Segments": [32, 27, 18, 0, -1, -1]},
    {"Taxon": "Friulian", "Segments": [32, 27, 18, 54, -1, -1]},
    {"Taxon": "Romanian", "Segments": [32, 27, -1, -1, -1, -1]}
  ]},
{
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    {"Taxon": "Italian", "Segments": [20, 31, 33, 10, 0, 33, 0]}
  ]},
{
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    {"Taxon": "Spanish", "Segments": [0, -1, 14, 20, 27, 28, 14, 7, 28, -1]},
    {"Taxon": "Catalan", "Segments": [4, -1, 14, 20, 4, 33, 3, 7, -1, -1]},
    {"Taxon": "Romanian", "Segments": [-1, -1, 16, 20, 0, 33, 10, 0, -1, -1]}
  ]},
{
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    {"Taxon": "Spanish", "Segments": [0, 13, 34, -1, 15, 1, -1, 27, 28, -1]},
    {"Taxon": "Italian", "Segments": [27, 16, 16, -1, 15, 1, -1, 27, 33, 0]},
    {"Taxon": "PortugueseBrazil", "Segments": [74, -1, 16, -1, 15, 1, -1, 27, 28, -1]},
    {"Taxon": "Portuguese", "Segments": [74, -1, 16, -1, 15, 71, -1, 27, 28, -1]},
    {"Taxon": "Catalan", "Segments": [4, -1, 16, -1, 15, 1, 27, -1, -1, -1]},
    {"Taxon": "Walloon", "Segments": [-1, -1, 14, -1, 15, -1, 8, 0, -1, -1]},
    {"Taxon": "Friulian", "Segments": [-1, -1, 14, -1, 15, -1, 12, 54, -1, -1]},
    {"Taxon": "Romanian", "Segments": [15, -1, 14, -1, -1, 52, -1, 27, -1, -1]}
  ]},
{
  "Name": "ToWipe-Limpidare", "Data": [
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    {"Taxon": "Spanish", "Segments": [32, 7, 26, 49, 12, -1, 27, 28, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [32, 44, -1, 49, -1, -1, 27, 28, -1]},
    {"Taxon": "Portuguese", "Segments": [32, 44, -1, 49, -1, -1, 27, 28, -1]}
  ]},
{
  "Name": "ToPull", "Data": [
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    {"Taxon": "French", "Segments": [20, 7, 36, 0, -1, -1]},
    {"Taxon": "Spanish", "Segments": [20, 7, 28, 27, 28, -1]},
    {"Taxon": "Italian", "Segments": [20, 7, 33, 27, 33, 0]},
    {"Taxon": "PortugueseBrazil", "Segments": [46, 7, 28, 27, -1, -1]},
    {"Taxon": "Portuguese", "Segments": [20, 7, 28, 27, 28, -1]},
    {"Taxon": "Catalan", "Segments": [20, 7, 28, 27, -1, -1]},
    {"Taxon": "Walloon", "Segments": [20, 7, 33, 0, -1, -1]},
  ]}
}
```

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```
{
  "Taxon": "Friulian", "Segments": [20, 7, 33, 54, -1, -1]}
}},
{"Name": "ToPull-Pulsare", "Data": [
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  {"Taxon": "French", "Segments": [49, 15, -1, 14, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [49, 15, -1, 34, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [49, 15, 32, 14, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [49, 15, -1, 16, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [49, 15, -1, 16, 27, 28, -1]},
  {"Taxon": "Walloon", "Segments": [49, 21, 14, 37, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [49, 15, 32, 14, 54, -1, -1]},
  {"Taxon": "Romanian", "Segments": [49, 15, 32, 14, 27, -1, -1]}
}},
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  {"Taxon": "French", "Segments": [20, 36, -1, -1, 31, 36, -1]},
  {"Taxon": "Italian", "Segments": [20, 33, 27, 33, -1, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 28, 27, 50, 0, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [20, 28, 29, 50, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [20, 28, 31, 8, -1, 28, 4]},
  {"Taxon": "Friulian", "Segments": [20, 33, 72, -1, -1, -1, -1]},
  {"Taxon": "Romanian", "Segments": [20, 33, 27, 10, 0, -1, -1]}
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  {"Taxon": "Italian", "Segments": [7, 26, 49, 7, 13, 10, 0, 33, 0]},
  {"Taxon": "Catalan", "Segments": [4, 26, 49, 31, 38, -1, 4, -1, -1]},
  {"Taxon": "Romanian", "Segments": [47, 26, 49, 7, 13, 10, 0, -1, -1]}
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  {"Taxon": "French", "Segments": [3, 4, -1, 20, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [-1, 0, -1, 46, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [10, 0, 20, 20, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [3, 59, 20, 27, 28, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [3, 59, 20, 27, 28, -1, -1]},
  {"Taxon": "Catalan", "Segments": [34, 7, 20, 27, -1, -1, -1]},
  {"Taxon": "Walloon", "Segments": [10, 31, 20, 0, -1, -1, -1]}
}},
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  {"Taxon": "French", "Segments": [32, 43, -1, 14, -1, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [32, 27, 13, -1, 58, -1, 27, 28]},
  {"Taxon": "Italian", "Segments": [32, 27, 13, 46, 27, 33, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [32, 45, -1, 14, -1, 27, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [32, 45, -1, 14, -1, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [35, 4, 13, 14, -1, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [32, 27, 13, 66, -1, 37, -1, -1]},
  {"Taxon": "Friulian", "Segments": [32, 27, 13, 46, 54, -1, -1, -1]}
}},
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  {"Taxon": "Spanish", "Segments": [27, -1, 33, 27, 13, 52, 27, 28, -1]},
```



## Appendix 2 - Tongue Twister Configuration

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```
{
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  "Taxon": "Romanian", "Segments": [27, -1, 28, 15, 75, 52, 27, -1, -1]}
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  {"Taxon": "French", "Segments": [32, 7, -1, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [32, 0, 1, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [32, 0, 1, 27, 33, 0]},
  {"Taxon": "Catalan", "Segments": [35, 7, 71, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [32, 9, 12, 37, -1, -1]},
  {"Taxon": "Friulian", "Segments": [32, 0, -1, 54, -1, -1]},
  {"Taxon": "Romanian", "Segments": [32, 0, 73, 27, -1, -1]}
}],
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  {"Taxon": "Spanish", "Segments": [27, -1, 20, 27, 28, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [29, -1, 20, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [29, -1, 20, 27, 28, -1]}
}],
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  {"Taxon": "French", "Segments": [52, 15, -1, 23, -1, -1, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [52, 6, -1, -1, 14, -1, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [52, 15, -1, -1, 46, -1, 7, 33, 0]},
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  {"Taxon": "Portuguese", "Segments": [52, 15, -1, -1, 50, -1, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [52, 15, -1, -1, 50, -1, 7, -1, -1]},
  {"Taxon": "Walloon", "Segments": [52, 64, -1, -1, 50, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [52, 15, -1, -1, 50, 7, -1, -1, -1]},
  {"Taxon": "Romanian", "Segments": [66, 39, -1, -1, 14, -1, 0, -1, -1]}
}],
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  {"Taxon": "French", "Segments": [52, 61, -1, -1, -1, 20, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [52, 6, 13, -1, -1, 20, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [52, 6, 13, -1, -1, 20, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, 61, -1, -1, -1, 20, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [52, 61, -1, -1, -1, 20, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [52, 15, 26, -1, -1, 20, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [52, 61, -1, -1, 20, 0, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [52, 6, 13, -1, -1, 20, 54, -1, -1]}
}],
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  {"Taxon": "French", "Segments": [0, 13, 15, 26, 0, 36, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [0, 13, 15, 26, 0, 28, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [0, 13, 15, 26, 0, 33, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [0, 13, 15, 26, 0, 28, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [0, 13, 15, 26, 0, 28, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [0, 13, 15, 26, 0, 28, 27, -1, -1]},
  {"Taxon": "Romanian", "Segments": [-1, 13, 15, 26, 27, 33, 27, -1, -1]}
}],
{"Name": "ToSay", "Data": [
```



## Appendix 2 - Tongue Twister Configuration

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```
{
  "Taxon": "Latin", "Segments": [23, 37, 52, 0, 33, 0]},
  {"Taxon": "French", "Segments": [23, 7, -1, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [23, 0, 58, 7, 28, -1]},
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  {"Taxon": "PortugueseBrazil", "Segments": [23, 7, 50, -1, 0, 28]},
  {"Taxon": "Portuguese", "Segments": [23, 7, 50, -1, 0, 28]},
  {"Taxon": "Catalan", "Segments": [23, 7, -1, -1, -1, -1]},
  {"Taxon": "Walloon", "Segments": [23, 37, -1, -1, 36, -1]},
  {"Taxon": "Friulian", "Segments": [23, 37, -1, -1, -1, -1]},
  {"Taxon": "Romanian", "Segments": [50, 7, 46, 0, -1, -1]}
]},
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  {"Taxon": "Italian", "Segments": [-1, -1, 14, 49, 6, 33, -1, 33, 0]},
  {"Taxon": "Romanian", "Segments": [-1, -1, 14, 49, 15, 13, 0, -1, -1]}
]},
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  {"Taxon": "Latin", "Segments": [52, 27, 13, 20, 54, 33, 0]},
  {"Taxon": "French", "Segments": [16, 43, -1, 20, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [52, 27, 13, 20, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [52, 27, 13, 20, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, 45, -1, 20, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [52, 45, -1, 20, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [52, 4, 13, 20, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [46, 48, -1, 20, 0, -1, -1]},
  {"Taxon": "Friulian", "Segments": [66, 27, 13, 20, 54, -1, -1]},
  {"Taxon": "Romanian", "Segments": [52, 47, 13, 20, 27, -1, -1]}
]},
{"Name": "ToPlay-Ludere", "Data": [
  {"Taxon": "Latin", "Segments": [32, 21, 23, 0, 33, 0]},
  {"Taxon": "Spanish", "Segments": [32, 15, 23, 7, 28, -1]}
]},
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  {"Taxon": "Latin", "Segments": [12, 6, -1, 52, 54, 33, 0]},
  {"Taxon": "French", "Segments": [3, -1, 8, -1, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [34, 15, -1, 73, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [10, 6, -1, 52, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [3, 6, -1, 1, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [3, 15, -1, 71, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [3, 15, -1, 1, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [10, 15, 8, -1, 0, -1, -1]},
  {"Taxon": "Friulian", "Segments": [10, 15, 12, -1, 54, -1, -1]},
  {"Taxon": "Romanian", "Segments": [3, 15, -1, 52, 27, -1, -1]}
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  {"Taxon": "Spanish", "Segments": [24, 32, 15, 1, 20, 8, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [24, 32, 15, 20, 20, 15, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [24, 32, 15, -1, 20, 15, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [24, 32, 15, -1, 20, 15, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [24, 32, 15, 52, 20, 15, 27, -1, -1]},
  {"Taxon": "Romanian", "Segments": [24, 32, 15, 66, 20, 15, 27, -1, -1]}
]}
```

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```
}},
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  {"Taxon": "Italian", "Segments": [24, 32, 15, 7, 20, 27, 33, 0]}
]},
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  {"Taxon": "French", "Segments": [24, 32, 22, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [24, 32, 15, 7, 28, -1]},
  {"Taxon": "Italian", "Segments": [24, 32, 15, 7, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [24, 32, 8, 7, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [24, 32, 8, 7, 28, -1]},
  {"Taxon": "Catalan", "Segments": [24, 32, 15, 7, -1, -1]}
]},
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  {"Taxon": "French", "Segments": [52, 15, 32, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [52, 6, 32, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [52, 6, 32, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, 6, -1, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [52, 15, -1, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [52, 15, 65, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [52, 9, 32, 0, -1, -1]}
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  {"Taxon": "Spanish", "Segments": [0, -1, 14, 52, 15, 33, 7, 28, -1, -1]},
  {"Taxon": "Italian", "Segments": [-1, -1, 14, 52, 6, 33, 33, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [7, -1, 16, 52, 6, -1, 36, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [7, -1, 16, 52, 15, -1, 56, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [4, -1, 14, 52, 6, -1, 33, 4, -1, -1]},
  {"Taxon": "Friulian", "Segments": [-1, -1, 14, 52, 6, -1, 33, 37, -1, -1]},
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  {"Taxon": "French", "Segments": [52, 15, -1, 36, 7, 36, -1]},
  {"Taxon": "Spanish", "Segments": [52, 6, -1, 33, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [52, 6, 33, 33, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, 6, -1, 36, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [52, 15, -1, 36, 0, 28, -1]},
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  {"Taxon": "Friulian", "Segments": [52, 6, -1, 33, 7, -1, -1]},
  {"Taxon": "Romanian", "Segments": [52, 15, 28, 10, 0, -1, -1]}
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  {"Taxon": "Spanish", "Segments": [-1, 0, 32, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [10, 0, 32, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [3, 47, 32, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [3, 47, 32, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [3, 4, 32, 27, -1, -1]},
```

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```
{
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}},
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  {"Taxon": "French", "Segments": [1, 32, 27, -1, 14, -1, 0, -1, -1]},
  {"Taxon": "Italian", "Segments": [1, 12, 27, 20, 46, 12, 27, 33, 0]},
  {"Taxon": "Catalan", "Segments": [1, 32, 4, -1, 14, -1, 27, -1, -1]},
  {"Taxon": "Friulian", "Segments": [73, 32, 27, -1, 46, -1, 54, -1, -1]}
]},
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  {"Taxon": "Romanian", "Segments": [47, 13, 73, -1, 0, 53, -1, 27, -1, -1]}
]},
{"Name": "ToBurn-Brojan", "Data": [
  {"Taxon": "French", "Segments": [19, 36, 22, 32, 0, -1, -1]},
  {"Taxon": "Italian", "Segments": [19, 33, 15, 46, 27, 33, 0]},
  {"Taxon": "Walloon", "Segments": [19, 36, 21, 32, 0, -1, -1]},
  {"Taxon": "Friulian", "Segments": [19, 33, 15, 50, 54, -1, -1]}
]},
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  {"Taxon": "French", "Segments": [52, 36, 27, 26, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [52, -1, 0, 26, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [52, 33, 0, 26, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, -1, 60, 26, 27, 28, 0]},
  {"Taxon": "Portuguese", "Segments": [52, -1, 59, 26, 27, 36, 0]},
  {"Taxon": "Catalan", "Segments": [52, 33, 4, 26, 27, -1, -1]}
]},
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  {"Taxon": "French", "Segments": [24, 32, 43, -1, 19, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [24, 32, 27, -1, 26, 0, 27, 28]},
  {"Taxon": "Italian", "Segments": [24, 12, 27, 26, 26, 27, 33, 0]},
  {"Taxon": "Catalan", "Segments": [24, 65, 27, 26, 27, -1, -1, -1]}
]},
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  {"Taxon": "Spanish", "Segments": [27, 28, 23, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [27, 33, 23, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [27, 36, 23, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [29, 28, 23, 0, 28, -1]},
  {"Taxon": "Romanian", "Segments": [27, 28, 23, 0, -1, -1]}
]},
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  {"Taxon": "French", "Segments": [24, 32, 27, 1, 36, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [24, 32, 27, 1, 28, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [24, 32, 27, 1, 33, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [24, 32, 27, 73, 36, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [24, 32, 27, 1, 28, 27, 28, -1]}
]},
{"Name": "ToBurn-Incendere", "Data": [
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```
{
  "Taxon": "Latin", "Segments": [7, 13, 52, 0, 13, 23, -1, 0, 33, 0]},
  {"Taxon": "French", "Segments": [81, -1, 14, 43, -1, 23, 12, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [0, 13, 58, 0, 13, 23, -1, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [7, 13, 46, 31, 13, 23, 12, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [44, -1, 14, 0, 13, 10, 11, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [44, -1, 14, 74, -1, 23, 12, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [4, 13, 14, 0, 13, 23, -1, -1, 28, 4]},
  {"Taxon": "Romanian", "Segments": [47, 13, 46, 7, 13, 23, 3, 0, -1, -1]}
}],
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  {"Taxon": "Italian", "Segments": [15, 14, 20, 6, 32, 27, 33, 0]},
  {"Taxon": "Romanian", "Segments": [15, 14, 20, 15, 33, 27, -1, -1]}
]},
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  {"Taxon": "Italian", "Segments": [6, 38, 38, 7, -1]}
]},
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  {"Taxon": "Latin", "Segments": [20, 2, -1, 20, 15, 14]},
  {"Taxon": "French", "Segments": [20, 15, -1, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [20, 6, -1, 23, 6, -1]},
  {"Taxon": "Italian", "Segments": [20, 15, 20, 20, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 6, -1, 23, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [20, 6, -1, 51, 15, -1]},
  {"Taxon": "Catalan", "Segments": [20, 6, -1, 20, -1, -1]},
  {"Taxon": "Walloon", "Segments": [20, 9, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [23, 15, -1, 20, -1, -1]},
  {"Taxon": "Romanian", "Segments": [20, 6, -1, 20, -1, -1]}
]},
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  {"Taxon": "Latin", "Segments": [26, 15, 32, 20, 15, 14]},
  {"Taxon": "French", "Segments": [26, 15, -1, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [26, 15, -1, 46, 6, -1]},
  {"Taxon": "Italian", "Segments": [26, 6, 32, 20, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [26, 85, 86, -1, 20, 15]},
  {"Taxon": "Portuguese", "Segments": [26, 85, 86, -1, 20, 15]},
  {"Taxon": "Catalan", "Segments": [26, 6, 32, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [26, 6, 32, 66, -1, -1]},
  {"Taxon": "Romanian", "Segments": [26, 15, 32, 20, -1, -1]}
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  {"Taxon": "Spanish", "Segments": [20, 27, 13, 20, 6, -1]},
  {"Taxon": "Italian", "Segments": [20, 27, 13, 20, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 45, -1, 20, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [20, 45, -1, 20, 15, -1]},
  {"Taxon": "Catalan", "Segments": [20, 27, 13, 20, -1, -1]},
  {"Taxon": "Friulian", "Segments": [20, 27, 13, 66, -1, -1]}
]},
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  {"Taxon": "French", "Segments": [6, -1, 52, 87, -1, -1]},
  {"Taxon": "Spanish", "Segments": [27, 32, 73, 15, 13, 6]}
```

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```
{
  "Taxon": "Italian", "Segments": [27, 32, 52, 15, 13, 6]},
  {"Taxon": "PortugueseBrazil", "Segments": [27, 8, 1, 85, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [27, 65, 1, 85, -1, -1]},
  {"Taxon": "Catalan", "Segments": [4, 32, 1, 15, -1, -1]}
}],
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  {"Taxon": "French", "Segments": [49, 68, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [49, 6, 52, 6, -1]},
  {"Taxon": "Italian", "Segments": [49, 9, 52, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [49, 6, 8, 52, 15]},
  {"Taxon": "Portuguese", "Segments": [49, 6, 8, 52, 15]},
  {"Taxon": "Catalan", "Segments": [49, 9, 52, -1, -1]},
  {"Taxon": "Walloon", "Segments": [49, 61, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [49, 2, 52, -1, -1]}
]},
{"Name": "Other", "Data": [
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  {"Taxon": "French", "Segments": [6, -1, 20, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [6, -1, 20, -1, 28, 6]},
  {"Taxon": "Italian", "Segments": [27, 32, 20, -1, 33, 6]},
  {"Taxon": "PortugueseBrazil", "Segments": [6, 8, 20, -1, 28, 15]},
  {"Taxon": "Portuguese", "Segments": [6, 8, 20, -1, 28, 15]},
  {"Taxon": "Catalan", "Segments": [27, 32, 20, -1, 28, 4]},
  {"Taxon": "Walloon", "Segments": [61, -1, 20, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [27, 32, 20, -1, 33, 7]},
  {"Taxon": "Romanian", "Segments": [27, 32, 20, -1, -1, -1]}
]},
{"Name": "Other-Alius", "Data": [
  {"Taxon": "Latin", "Segments": [27, 32, 7, 15, 14]},
  {"Taxon": "PortugueseBrazil", "Segments": [27, 8, -1, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [27, 65, -1, -1, -1]}
]},
{"Name": "Big", "Data": [
  {"Taxon": "Latin", "Segments": [26, 27, 73, 13, 15, 26]},
  {"Taxon": "Spanish", "Segments": [26, 27, -1, 38, 6, -1]},
  {"Taxon": "Italian", "Segments": [26, 27, 38, 38, 6, -1]}
]},
{"Name": "Big-Grandem", "Data": [
  {"Taxon": "Latin", "Segments": [73, 33, 27, 13, 23, 0, 26]},
  {"Taxon": "French", "Segments": [1, 36, 48, -1, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [1, 28, 27, 13, 23, 0, -1]},
  {"Taxon": "Italian", "Segments": [1, 33, 27, 13, 23, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [1, 28, 45, -1, 10, 7, -1]},
  {"Taxon": "Portuguese", "Segments": [1, 28, 45, -1, 23, 47, -1]},
  {"Taxon": "Catalan", "Segments": [73, 33, 27, 13, -1, -1, -1]},
  {"Taxon": "Walloon", "Segments": [73, 36, 48, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [73, 33, 27, 13, 20, -1, -1]}
]},
{"Name": "Big-Majjorem", "Data": [
  {"Taxon": "Latin", "Segments": [26, 72, 12, 6, 33, 0, 26]},
  {"Taxon": "Romanian", "Segments": [26, 27, -1, -1, -1, 28, 0]}
]},
```

## Appendix 2 - Tongue Twister Configuration

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```
{
  "Name": "Long-Longum", "Data": [
    {"Taxon": "Latin", "Segments": [32, 6, -1, 13, 1, 15, 26]},
    {"Taxon": "French", "Segments": [32, 42, -1, -1, -1, -1, -1]},
    {"Taxon": "Spanish", "Segments": [32, 6, -1, 13, 73, 6, -1]},
    {"Taxon": "Italian", "Segments": [32, 15, -1, 13, 1, 6, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [32, 61, -1, 1, 15, -1, -1]},
    {"Taxon": "Portuguese", "Segments": [32, 61, -1, 1, 15, -1, -1]},
    {"Taxon": "Catalan", "Segments": [35, 6, -1, 75, -1, -1, -1]},
    {"Taxon": "Walloon", "Segments": [32, 61, -1, -1, -1, -1, -1]},
    {"Taxon": "Friulian", "Segments": [32, 15, 13, 52, -1, -1, -1]},
    {"Taxon": "Romanian", "Segments": [32, 15, 13, 73, -1, -1, -1]}
  ],
  "Name": "Long-Largum", "Data": [
    {"Taxon": "Latin", "Segments": [32, 27, 33, 73, 15, 26]},
    {"Taxon": "French", "Segments": [32, 27, 36, 3, -1, -1]},
    {"Taxon": "Spanish", "Segments": [32, 27, 28, 71, 6, -1]},
    {"Taxon": "Italian", "Segments": [32, 27, 33, 1, 6, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [32, 27, 36, 1, 15, -1]},
    {"Taxon": "Portuguese", "Segments": [32, 27, 28, 1, 15, -1]},
    {"Taxon": "Catalan", "Segments": [35, 27, 28, 52, -1, -1]},
    {"Taxon": "Friulian", "Segments": [32, 27, 33, 52, -1, -1]},
    {"Taxon": "Romanian", "Segments": [32, 27, 33, 73, -1, -1]}
  ],
  "Name": "Wide", "Data": [
    {"Taxon": "Latin", "Segments": [32, 54, 20, 15, 26]},
    {"Taxon": "French", "Segments": [32, 0, -1, -1, -1]},
    {"Taxon": "Spanish", "Segments": [32, 27, 20, 6, -1]},
    {"Taxon": "Italian", "Segments": [32, 27, 20, 6, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [32, 27, 20, 15, -1]},
    {"Taxon": "Portuguese", "Segments": [32, 27, 20, 15, -1]},
    {"Taxon": "Romanian", "Segments": [32, 27, 20, -1, -1]}
  ],
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    {"Taxon": "Latin", "Segments": [27, 26, 49, 32, 15, 26]},
    {"Taxon": "French", "Segments": [43, -1, 49, 32, -1, -1]},
    {"Taxon": "Spanish", "Segments": [27, 13, 46, -1, 6, -1]},
    {"Taxon": "Italian", "Segments": [27, 26, 49, 12, 6, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [45, -1, 16, -1, 15, -1]},
    {"Taxon": "Portuguese", "Segments": [45, -1, 16, -1, 15, -1]},
    {"Taxon": "Catalan", "Segments": [27, 26, 49, 32, 4, -1]}
  ],
  "Name": "Heavy", "Data": [
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    {"Taxon": "French", "Segments": [1, 36, 27, 18, -1, -1]},
    {"Taxon": "Spanish", "Segments": [1, 28, 27, 19, 0, -1]},
    {"Taxon": "Italian", "Segments": [1, 33, 31, 18, 0, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [1, 28, 27, 18, 7, -1]},
    {"Taxon": "Portuguese", "Segments": [1, 28, 27, 18, 47, -1]},
    {"Taxon": "Catalan", "Segments": [1, 28, 0, 8, -1, -1]},
    {"Taxon": "Walloon", "Segments": [73, 33, 27, 18, -1, -1]},
    {"Taxon": "Friulian", "Segments": [73, 33, 31, 18, 7, -1]},
    {"Taxon": "Romanian", "Segments": [73, 28, 0, 8, -1, -1]}
  ],
}
```

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```
{
  "Name": "Heavy-Lurdus", "Data": [
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    {"Taxon": "French", "Segments": [32, 15, 36, -1, -1, -1]},
    {"Taxon": "Spanish", "Segments": [32, 0, 28, 23, 6, -1]},
    {"Taxon": "Italian", "Segments": [32, 6, 33, 23, 6, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [32, 0, 28, 23, 6, -1]},
    {"Taxon": "Portuguese", "Segments": [32, 0, 28, 23, 6, -1]}
  ]
},
{
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    {"Taxon": "French", "Segments": [49, 4, 50, 43, -1, -1, -1]},
    {"Taxon": "Spanish", "Segments": [49, 0, 14, 27, -1, 51, 6]},
    {"Taxon": "Italian", "Segments": [49, 0, 14, 27, 13, 20, 0]},
    {"Taxon": "PortugueseBrazil", "Segments": [49, 0, 50, 27, -1, 23, 15]},
    {"Taxon": "Portuguese", "Segments": [49, 47, 50, 27, -1, 51, 15]},
    {"Taxon": "Catalan", "Segments": [49, 4, 50, 27, -1, 20, -1]},
    {"Taxon": "Friulian", "Segments": [49, 0, 50, 27, 13, 20, -1]}
  ]
},
{
  "Name": "Small", "Data": [
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    {"Taxon": "French", "Segments": [49, 4, -1, 20, 7, -1, -1, -1]},
    {"Taxon": "Catalan", "Segments": [49, 4, 20, 7, 20, -1, -1, -1]},
    {"Taxon": "Walloon", "Segments": [49, 7, -1, 20, 7, -1, -1, -1]}
  ]
},
{
  "Name": "Small-Pittinus", "Data": [
    {"Taxon": "Latin", "Segments": [49, 7, 20, 20, 7, 13, 15, 14]},
    {"Taxon": "Spanish", "Segments": [49, 0, -1, 52, 0, 38, 6, -1]},
    {"Taxon": "Italian", "Segments": [49, 7, 20, 46, 7, 13, 6, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [49, 0, 52, 0, 13, 15, -1, -1]},
    {"Taxon": "Portuguese", "Segments": [49, 47, 52, 0, 13, 15, -1, -1]},
    {"Taxon": "Romanian", "Segments": [49, 15, -1, 53, 7, 13, -1, -1]}
  ]
},
{
  "Name": "Small-Pitulus", "Data": [
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    {"Taxon": "Italian", "Segments": [49, 7, 52, 52, 6, 32, 6, -1]},
    {"Taxon": "Friulian", "Segments": [49, 7, -1, 46, 15, 32, -1, -1]}
  ]
},
{
  "Name": "Short", "Data": [
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    {"Taxon": "French", "Segments": [52, 15, 36, -1, -1, -1]},
    {"Taxon": "Spanish", "Segments": [52, 6, 28, 20, 6, -1]},
    {"Taxon": "Italian", "Segments": [52, 6, 33, 20, 6, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [52, 15, 36, 20, 15, -1]},
    {"Taxon": "Portuguese", "Segments": [52, 15, 28, 20, 15, -1]},
    {"Taxon": "Catalan", "Segments": [52, 15, 28, 20, -1, -1]},
    {"Taxon": "Walloon", "Segments": [52, 21, 36, -1, -1, -1]},
    {"Taxon": "Friulian", "Segments": [52, 15, 33, 20, -1, -1]}
  ]
},
{
  "Name": "Short-Brevis", "Data": [
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    {"Taxon": "French", "Segments": [19, 36, 31, 24, -1, -1]},
    {"Taxon": "Spanish", "Segments": [19, 28, 0, 19, 0, -1]},
    {"Taxon": "Italian", "Segments": [19, 33, 31, 18, 0, -1]}
  ]
}
```



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```
{
  "Taxon": "PortugueseBrazil", "Segments": [19, 28, 31, 18, 7, -1]},
  {"Taxon": "Portuguese", "Segments": [19, 28, 31, 18, 47, -1]},
  {"Taxon": "Catalan", "Segments": [19, 28, 0, 8, -1, -1]},
  {"Taxon": "Walloon", "Segments": [19, 36, 0, 24, -1, -1]}
}],
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  {"Taxon": "Spanish", "Segments": [27, 13, 1, 6, 14, 20, 6, -1]},
  {"Taxon": "Italian", "Segments": [27, 13, 1, 15, 14, 20, 6, -1]},
  {"Taxon": "Romanian", "Segments": [47, 75, 73, 15, 14, 20, -1, -1]}
]},
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  {"Taxon": "French", "Segments": [0, -1, 20, 36, 8, 27, -1, -1, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [0, 14, 20, 28, -1, 0, -1, -1, 46, 6, -1]},
  {"Taxon": "Italian", "Segments": [-1, 14, 20, 33, -1, 0, -1, 20, 20, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [7, 14, 20, 28, -1, 59, -1, -1, 20, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [47, 16, 20, 28, -1, 60, -1, -1, 20, 15, -1]},
  {"Taxon": "Catalan", "Segments": [4, 14, 20, 28, -1, 31, -1, -1, 20, -1, -1]},
  {"Taxon": "Walloon", "Segments": [-1, 14, 20, 36, -1, 64, -1, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [-1, 14, 20, 33, -1, 31, -1, -1, 20, -1, -1]},
  {"Taxon": "Romanian", "Segments": [-1, 14, 20, 33, -1, 47, 26, -1, 20, -1, -1]}
]},
{"Name": "Thin", "Data": [
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  {"Taxon": "French", "Segments": [26, 4, 13, 22, -1, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [26, 0, 13, 15, -1, 23, 6, -1]},
  {"Taxon": "Italian", "Segments": [26, 7, 13, 15, -1, 20, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [26, 7, -1, 15, -1, 23, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [26, 7, -1, 15, -1, 51, 15, -1]},
  {"Taxon": "Catalan", "Segments": [26, 4, 13, 15, -1, 20, -1, -1]},
  {"Taxon": "Walloon", "Segments": [26, 7, 13, 15, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [26, 7, 13, 21, -1, 20, -1, -1]},
  {"Taxon": "Romanian", "Segments": [26, 4, 33, 15, 13, 20, -1, -1]}
]},
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  {"Taxon": "Spanish", "Segments": [23, 0, 32, -1, 71, 27, 51, 6, -1]},
  {"Taxon": "Italian", "Segments": [23, 0, 32, 7, 52, 27, 20, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [23, 0, 8, -1, 1, 27, 23, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [23, 31, 65, -1, 71, 27, 51, 15, -1]},
  {"Taxon": "Catalan", "Segments": [23, 4, 32, 7, 52, 27, 20, -1, -1]}
]},
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  {"Taxon": "Spanish", "Segments": [14, 15, -1, 20, 7, 32, -1, -1]},
  {"Taxon": "Italian", "Segments": [14, 6, 20, 20, 7, 32, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [14, 15, 46, 7, 8, -1, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [14, 15, 46, 7, 8, -1, -1, -1]},
  {"Taxon": "Catalan", "Segments": [14, 15, 49, 20, 7, 32, -1, -1]},
  {"Taxon": "Walloon", "Segments": [14, 21, 20, 7, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [14, 15, 20, 37, 32, -1, -1, -1]},
```



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```
{
  "Taxon": "Romanian", "Segments": [14, 15, 19, 53, 7, 33, 0, -1]}
}},
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  {"Taxon": "Latin", "Segments": [8, 7, 33, 7, 23, 0, 26]},
  {"Taxon": "French", "Segments": [18, 0, 36, -1, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [19, 0, 28, -1, 23, 0, -1]},
  {"Taxon": "Italian", "Segments": [18, 0, 33, -1, 23, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [18, 0, 28, -1, 23, 47, -1]},
  {"Taxon": "Portuguese", "Segments": [18, 0, 28, -1, 23, 47, -1]},
  {"Taxon": "Catalan", "Segments": [18, 31, 28, -1, 20, -1, -1]},
  {"Taxon": "Walloon", "Segments": [18, 31, 36, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [18, 31, 33, -1, 20, -1, -1]},
  {"Taxon": "Romanian", "Segments": [18, 0, 28, -1, 23, 0, -1]}
}},
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  {"Taxon": "French", "Segments": [87, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [15, 13, 6, -1]},
  {"Taxon": "Italian", "Segments": [15, 13, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [85, -1, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [85, -1, -1, -1]},
  {"Taxon": "Catalan", "Segments": [15, 13, -1, -1]},
  {"Taxon": "Walloon", "Segments": [61, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [15, 75, -1, -1]},
  {"Taxon": "Romanian", "Segments": [15, 13, 15, -1]}
}},
{"Name": "Two-Duos", "Data": [
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  {"Taxon": "French", "Segments": [23, -1, 68, -1]},
  {"Taxon": "Spanish", "Segments": [23, -1, 6, 14]},
  {"Taxon": "PortugueseBrazil", "Segments": [23, -1, 17, 14]},
  {"Taxon": "Portuguese", "Segments": [23, -1, 17, 16]},
  {"Taxon": "Catalan", "Segments": [23, -1, 6, 14]},
  {"Taxon": "Walloon", "Segments": [23, -1, 64, -1]},
  {"Taxon": "Friulian", "Segments": [23, -1, 17, -1]},
  {"Taxon": "Romanian", "Segments": [23, -1, 17, -1]}
}},
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  {"Taxon": "Italian", "Segments": [23, 15, -1, 0]},
  {"Taxon": "Romanian", "Segments": [23, 6, 8, 4]}
]},
{"Name": "Two-Duas", "Data": [
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  {"Taxon": "PortugueseBrazil", "Segments": [23, 15, 29, 14]},
  {"Taxon": "Portuguese", "Segments": [23, 15, 29, 16]}
]},
{"Name": "Three", "Data": [
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  {"Taxon": "French", "Segments": [20, 36, 8, 78, -1]},
  {"Taxon": "Spanish", "Segments": [20, 28, -1, 0, 14]},
  {"Taxon": "Italian", "Segments": [20, 33, -1, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 28, -1, 0, 14]},
```

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```
{
  "Taxon": "Portuguese", "Segments": [20, 28, -1, 0, 16]},
  {"Taxon": "Catalan", "Segments": [20, 33, -1, 31, 14]},
  {"Taxon": "Walloon", "Segments": [20, 33, -1, 64, -1]},
  {"Taxon": "Friulian", "Segments": [20, 33, -1, 25, -1]},
  {"Taxon": "Romanian", "Segments": [20, 33, -1, 59, -1]}
}],
{"Name": "Four", "Data": [
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  {"Taxon": "French", "Segments": [52, -1, 27, -1, 20, -1, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [52, 8, 27, -1, 20, -1, -1, 28, 6]},
  {"Taxon": "Italian", "Segments": [52, 8, 27, 20, 20, -1, -1, 33, 6]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, 8, 27, -1, 20, -1, -1, 28, 15]},
  {"Taxon": "Portuguese", "Segments": [52, 8, 27, -1, 20, -1, -1, 28, 15]},
  {"Taxon": "Catalan", "Segments": [52, 8, 27, -1, 20, -1, -1, 28, 4]},
  {"Taxon": "Walloon", "Segments": [52, 8, 27, -1, 20, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [52, 8, 27, -1, 20, -1, -1, 33, 7]},
  {"Taxon": "Romanian", "Segments": [49, -1, 27, -1, 20, -1, -1, 33, 15]}
]},
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  {"Taxon": "French", "Segments": [14, 74, -1, 52, -1, -1]},
  {"Taxon": "Spanish", "Segments": [58, 7, 13, 52, -1, 6]},
  {"Taxon": "Italian", "Segments": [46, 7, 75, 52, 8, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [14, 44, -1, 52, -1, 15]},
  {"Taxon": "Portuguese", "Segments": [14, 44, -1, 52, -1, 15]},
  {"Taxon": "Catalan", "Segments": [14, 7, 75, 52, -1, -1]},
  {"Taxon": "Walloon", "Segments": [14, 74, -1, 52, -1, -1]},
  {"Taxon": "Friulian", "Segments": [46, 7, 75, 52, -1, -1]},
  {"Taxon": "Romanian", "Segments": [46, 7, 13, 46, -1, -1]}
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  {"Taxon": "French", "Segments": [7, -1, -1, 14, -1, -1, -1, 7, -1]},
  {"Taxon": "Spanish", "Segments": [-1, 27, -1, 52, -1, -1, -1, 7, -1]},
  {"Taxon": "Italian", "Segments": [-1, -1, -1, 52, 8, -1, -1, 7, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [-1, 27, -1, 52, -1, -1, -1, 7, -1]},
  {"Taxon": "Portuguese", "Segments": [-1, 29, -1, 52, -1, -1, -1, 7, -1]},
  {"Taxon": "Catalan", "Segments": [-1, 27, -1, 52, -1, -1, -1, 7, -1]},
  {"Taxon": "Friulian", "Segments": [-1, 27, -1, 52, -1, -1, -1, 7, -1]}
]},
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  {"Taxon": "Latin", "Segments": [7, 32, 32, 54, 52]},
  {"Taxon": "French", "Segments": [-1, -1, 32, 27, -1]},
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  {"Taxon": "Italian", "Segments": [-1, -1, 32, 27, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [-1, -1, 32, 27, -1]},
  {"Taxon": "Portuguese", "Segments": [-1, -1, 32, 27, -1]},
  {"Taxon": "Catalan", "Segments": [4, -1, 35, 27, -1]},
  {"Taxon": "Walloon", "Segments": [-1, -1, 32, 27, -1]},
  {"Taxon": "Romanian", "Segments": [-1, -1, 32, 27, -1]}
]},
{"Name": "There-Ibi", "Data": [
  {"Taxon": "Latin", "Segments": [7, 19, 37]},
```

## Appendix 2 - Tongue Twister Configuration

---

```
{
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}},
{"Name": "There-AdIbi", "Data": [
  {"Taxon": "Spanish", "Segments": [27, 7]},
  {"Taxon": "PortugueseBrazil", "Segments": [27, 7]},
  {"Taxon": "Portuguese", "Segments": [29, 7]}
]},
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  {"Taxon": "French", "Segments": [52, -1, 7, -1]},
  {"Taxon": "Italian", "Segments": [52, -1, 7, -1]},
  {"Taxon": "Catalan", "Segments": [52, -1, 7, -1]},
  {"Taxon": "Walloon", "Segments": [52, -1, 37, -1]},
  {"Taxon": "Friulian", "Segments": [52, 8, 7, -1]}
]},
{"Name": "Who-Quem", "Data": [
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  {"Taxon": "Spanish", "Segments": [52, 12, 0, 13, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, -1, 41, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [52, -1, 55, -1, -1]},
  {"Taxon": "Romanian", "Segments": [82, -1, 7, 13, 0]}
]},
{"Name": "What", "Data": [
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  {"Taxon": "French", "Segments": [52, 8, 27, -1]},
  {"Taxon": "Spanish", "Segments": [52, -1, 0, -1]},
  {"Taxon": "Italian", "Segments": [52, -1, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, -1, 7, -1]},
  {"Taxon": "Portuguese", "Segments": [52, -1, 47, -1]},
  {"Taxon": "Catalan", "Segments": [52, -1, 31, -1]},
  {"Taxon": "Walloon", "Segments": [52, 8, 62, -1]},
  {"Taxon": "Friulian", "Segments": [46, -1, 0, -1]},
  {"Taxon": "Romanian", "Segments": [46, -1, 0, -1]}
]},
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  {"Taxon": "Spanish", "Segments": [52, 8, 27, 13, 23, 6]},
  {"Taxon": "Italian", "Segments": [52, 8, 27, 13, 23, 6]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, 8, 45, -1, 23, 15]},
  {"Taxon": "Portuguese", "Segments": [52, 8, 45, -1, 23, 15]},
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  {"Taxon": "Walloon", "Segments": [52, 8, 27, 13, 23, -1]},
  {"Taxon": "Friulian", "Segments": [52, 8, 27, 13, 20, -1]},
  {"Taxon": "Romanian", "Segments": [52, -1, 47, 13, 23, -1]}
]},
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  {"Taxon": "French", "Segments": [52, 9, 26, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [52, 6, 26, 6, -1, -1]},
  {"Taxon": "Italian", "Segments": [52, 6, 26, 0, -1, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [52, 6, 26, 15, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [52, 6, 26, 15, -1, -1]},
```

## Appendix 2 - Tongue Twister Configuration

---

```
{
  "Taxon": "Catalan", "Segments": [52, 9, 26, -1, -1, -1]},
  "Taxon": "Walloon", "Segments": [52, 9, 26, 81, -1, -1]},
  "Taxon": "Friulian", "Segments": [46, 0, 26, 21, 20, -1]},
  "Taxon": "Romanian", "Segments": [52, 15, 26, -1, -1, -1]}
}],
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  {"Taxon": "French", "Segments": [13, 42, -1]},
  {"Taxon": "Spanish", "Segments": [13, 6, -1]},
  {"Taxon": "Italian", "Segments": [13, 6, 13]},
  {"Taxon": "PortugueseBrazil", "Segments": [13, 45, 89]},
  {"Taxon": "Portuguese", "Segments": [13, 45, 89]},
  {"Taxon": "Catalan", "Segments": [13, 6, -1]},
  {"Taxon": "Friulian", "Segments": [13, 6, -1]},
  {"Taxon": "Romanian", "Segments": [13, 15, -1]}
]},
{"Name": "Not-Nec", "Data": [
  {"Taxon": "Latin", "Segments": [13, 0, 52]},
  {"Taxon": "French", "Segments": [13, 7, -1]},
  {"Taxon": "Spanish", "Segments": [13, 7, -1]},
  {"Taxon": "Italian", "Segments": [13, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [13, 41, -1]},
  {"Taxon": "Portuguese", "Segments": [13, 55, -1]},
  {"Taxon": "Catalan", "Segments": [13, 7, -1]},
  {"Taxon": "Walloon", "Segments": [13, 74, -1]}
]},
{"Name": "And-Et", "Data": [
  {"Taxon": "Latin", "Segments": [0, 20]},
  {"Taxon": "French", "Segments": [0, -1]},
  {"Taxon": "Spanish", "Segments": [7, -1]},
  {"Taxon": "Italian", "Segments": [0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [7, -1]},
  {"Taxon": "Portuguese", "Segments": [7, -1]},
  {"Taxon": "Catalan", "Segments": [7, -1]},
  {"Taxon": "Walloon", "Segments": [31, -1]},
  {"Taxon": "Friulian", "Segments": [0, -1]},
  {"Taxon": "Romanian", "Segments": [0, -1]}
]},
{"Name": "And-Si", "Data": [
  {"Taxon": "Latin", "Segments": [14, 37, 52]},
  {"Taxon": "Romanian", "Segments": [16, 7, -1]}
]}
]
```

## Appendix 3 - RevBayes Source File

---

```
#####
# RevBayes Source File for Linguistomics Project #
#####
clear()
path = "C:/Users/shawn/Documents/Code/Linguistomics/Run/Run1/"
gammapath = path+"Gamma.trees"

# Read in discrete character data
data = readDiscreteCharacterData(path+"Characters.nex")

# Get some useful variables from the data. We need these later on
num_taxa <- data.n taxa()

# Number of branches in an rooted tree
num_branches <- 2 * num_taxa - 2
taxa <- data.t taxa()

# Create helper variables
moves = VectorMoves()
monitors = VectorMonitors()

#####
# Tree Model #
#####

# Outgroup is a clade consisting of one language
out_group = clade("Latin")

# Prior distribution on the tree topology
topology ~ dnUniformTopology(taxa, outgroup=out_group, rooted=TRUE)

# These are moves that change the tree topology
moves.append(mvNNI(topology, weight=num_taxa/2.0))
moves.append(mvSPR(topology, weight=num_taxa/10.0))

# Branch length prior
for (i in 1:num_branches) {
  bl[i] ~ dnExponential(10.0)
  moves.append(mvScale(bl[i]))
}

TL := sum(bl)

psi := treeAssembly(topology, bl)

#####
```

## Appendix 3 - RevBayes Source File

---

```
# Substitution Model #
#####

# This is the number of unique characters from the segment filters
unique_chars = 90

# Jukes-Cantor model
Q <- fnJC(unique_chars)

#####
# Gamma model for among-site variation #
#####
alpha ~ dnUniform(0, 10.0)
moves.append(mvScale(alpha, weight=1))
site_rates := fnDiscretizeGamma(alpha, alpha, 4)

#####
# PhyloCTMC Model #
#####
seq ~ dnPhyloCTMC(tree=psi, Q=Q, type="Standard", siteRates=site_rates)
seq.clamp(data)

#####
# Analysis #
#####

# You can use any node as the argument of model()
mymodel = model(psi)
n_gen = 10

# This prints monitors to the screen
monitors.append(mnScreen(TL, printgen=n_gen))

# This monitors the trees and puts them in a file
monitors.append(mnFile(psi, filename=gammapath, printgen=n_gen))

# Model monitor
monitors.append(mnModel(filename=path+"Gamma.log", printgen=n_gen))
mymcmc = mcmc(mymodel, moves, monitors, nruns=1, combine="mixed")
mymcmc.run(generations=1000)

# Summarizes the MCMC runs
mymcmc.operatorSummary()

#####
# Post processing #
#####
treetrace = readTreeTrace(gammapath, outgroup=out_group)
```

## Appendix 3 - RevBayes Source File

---

```
map_tree      = mapTree(treetrace, path+"Gamma_MAP.tree")
mcc_tree      = mccTree(treetrace, path+"Gamma_MCC.tree")
consensus_tree = consensusTree(treetrace, path+"Gamma_Consensus.tree")

# Exit the program
q()
```

## Appendix 4 - Segments used in the word list

---

Char.	Segment	Words containing this segment
-------	---------	-------------------------------



## Appendix 4 - Segments used in the word list

0	e	<p>ego:, ew, jew, usted, vose, vɔse, voste, embra, femmina, femɐv, femjɐ, fembra, feme je, mulierem, muxer, moʎʎe, muʎɐv, muʎer, muʎe, mujere, dɔne, hominem, ombre, infantem, infante, fante, nenɛj, nen, epuz, esposa, mulier, muxer, moʎʎe, muʎɐv, muʎer, muʎe, mujere, epu, esposo, ma:trem, meɐ, maðre, ma:dre, mer, piskem, peθ, peʃʃe, peʃ, peʃte, awem, abe, awikellum, useʎ, passerem, passero, pasɐre, flo:rem, f jo:re, floare, ne, nariʃe, so:lem, sole, soare, soreli, lune, etwal, estreja, stella, istrelɐ, iftrelɐ, stele, age, ploje, ploaje, mare, meɐ, sa:lem, sale, se, sare, terra, teɐ, tjera, teɐv, tjere, ka:li:ginem, kaliɖʒine, nebula, njebla, nebbja, newlɔ, negurɔ, tene:braj, te:nebre, tene:bra:s, tenɐv, tinjeblas, te:nebre, tɔnebrɔs, fyme, fumate, θjelo, ʃer, wentum, bj ento, ben, fwego, no:men, no:me, nume, no:minem, nombre, lengwa, bibere, beber, bere, bebeɐ, biʃer, bevi, komedere, komer, kome, kumer, manduka:re, mɔʒe, mandʒ are, morde:re, morðer, mɔrdere, moɐdeɐ, murðer, morsika:re, morsikare, murseka, su:gere, syse, suɖʒe, konspuere, kɔspye, eskupir, sputere, esputar, sputare, ski:re, sa pere, saber, sabeɐ, sɐber, kogno:skere, konoθer, konofʃere, kopeseɐ, kupiser, kunɔa fte, ko:gita:re, kɔide, koɖʒitare, kuɖʒeta, pe:nsa:re, pɔse, pensar, pensare, pɛse, pe:nsa:, time:re, temer, temere, temɐv, timer, temɔ, temi, teme, tremere, tremer, tremare, tr emɐv, trimer, dormi:re, dormire, wi:were, vivere, viveɐ, viver, morire, moɐv, muɐ er, neka:re, nwaje, neka, anegar, annegare, tɔe, tuwe, macta:re, mate, okki:dere, utʃ idere, utʃide, pugnare, puɔɔnare, battuere, battere, bateɐ, bɔter, bate, kaptiare, fase, katʃare, ra:dere, raer, radere, ɐaɐv, ɐaer, rade, ɐaze, rasare, nata:re, nwotare, navi gare, naze, nabegar, navigare, wola:re, vole, volare, vɔle, zvolare, ʃamine, kammin are, ʃimine, maɐʃe, mergere, mɛrɖʒere, merɖʒe, ambita:re, andare, wenire, benir, v enire, veni, ekstendere, etɔɔv, ekstender, estendere, istɛdeɐ, iftɛder, ɔstendrɔ, ekst inde, jake:re, zeziɐ, jaθer, ɖaʃe:re, zezeɐ, zezer, ɖʒere, jesi, sede:re, ser, sedere, seɐ, ʃ edɛa, sedenta:re, sentar, senta:, sta:re, estar, stare, leva:re, lɔve, jebar, levare, levaɐ, leva:, altia:re, ose, alsare, torna:re, tuɔne, tornare, turne, gyra:re, ziɐ, ɖʒirare, viɐe, virare, tork<sup>w</sup>:re, torθer, tɔrtʃere, turser, tɔarʃe, kadere, kaer, kadere, ʃjade, tɔbe, t ume, tene:re, tener, tenere, teɐ, ter, tsine, segurar, esprimere, epɛɔv, ekspremir, s premere, ifprɔmeɐ, ifprɔmer, ɔspremɔ, esprimi, skreme, serrere, serar, seɐa, serare, seɐe, θerar, serrare, sere, appektora:re, apretar, stringere, etɛɔv, estreɔir, strindʒer e, stringe, strindʒe, frikare, fɐje, fregar, fegare, frea, freka, frikta:re, fɔte, frett are, lawa:re, lave, lavare, tergere, terɖʒere, ekstergere, estarsir, ʃterɖʒe, eksuka:re, e sqije, enxugar, affugare, suwe, limpida:re, tira:re, tiɐe, tirare, tire, pulsa:re, puse, p ulsare, trahere, trarre, traze, trɛzer, traɖʒe, impingere, impindʒere, impindʒe, jakta:r e, zɔte, eʃar, ɖettare, ɖete, lankea:re, lɔse, lanʃare, e:runka:re, arronʃare, liga:re, l ie, legar, legare, lea:, lega, apta:re, ko:nsuere, koser, kuʃire, kuzer, ɔqase, komputa:r e, kɔte, kontare, kɔte, e:numera:re, enumeɐe, enumerar, enumerare, enumera, di:ke re, deθir, dire, dizer, ziʃe, ekspo:nere, sporre, spune, kanta:re, ʃɔte, kantare, ʃɔte, l u:dere, joka:re, zwe, ɖokare, ɖuwe, flu:ktua:re, flyktɔe, fluttuare, fluitare, fluitar e, fluere, flye, fluire, ko:la:re, kule, kolare, kɔle, ekskurrere, eskurir, skorrere, ifko vɐv, ifkurer, skurɖʒe, kurrere, korer, korrere, koɐv, kuɐer, kurɖʒe, gela:re, zɔle, elar, ɖelare, ɖale, glakia:re, glase, gʒatʃjare, inglakia:re, ingetsa, bɔyle, bruʃare, bɔu:le, krema:re, kɔame, kemar, kremare, kɛjmaɐe, kejmave, flamma:re, flɔbe, flamear, fj ammare, arde:re, arder, ardere, aɐdeɐ, ɔrder, arde, flagra:re, flagɐe, flagrare, inken dere, ɛsɔɔɖje, enθender, inʃendjare, isendʒiar, ɔsendrɔ, inʃindʒe, ustula:re, ustolare, alter, grandem, grande, grande, majjorem, mare, le, grabe, greve, grew, grew, lerdo, pesaɔo, pesante, pezadu, pezant, pekeɔo, pekenu, pikenu, brewis, brebe, breve, bre w, bɐef, etɐwa, estrefʃo, stretto, menudo, delɔaɔo, delikato, dewgadu, subti:lem, sottile, subtsire, wiridem, vɐv, berde, verde, verdi, verde, due, tres, tre, tref, k<sup>w</sup>:ink<sup>w</sup>e, ʃinkwe, ekkumhi:k, k<sup>w</sup> em, kjen, ʃine, ke, ʃe, kome, ʃemu:t, nek, ne, et, e</p>
---	---	---

## Appendix 4 - Segments used in the word list

1	g	ego:, agwə, lago, lagu, ka:li:ginem, negurə, fwego, fogu, lāg, lengwa, lingwa, līgwe, musəga, musəgar, su:gere, sugaʁ, sugar, kogno:skere, ko:gita:re, nəga, anegar, anne gare, nabegar, navigare, nəbəga, naviga, segurar, siguraʁ, fregar, frəga, iffrigar, te rgere, ekstergere, enxugar, affugare, ɛʃugar, əfuga, liga:re, legar, legare, zogax, zuga, flugtwar, gela:re, glakia:re, glase, gjatʃjare, gləsa, inglakia:re, flagra:re, flagke, flag rar, flagrare, flagrar, awgū, aʔgū, əlgu, gʁā, grande, grande, grēdʒi, grēdi, longum, l ungo, lōgu, largo, laʁgu, largu, grawis, gʁav, grabe, grēve, gravi, gravi, grew, angus tus, angosto, angusto, dewgadu
2	o:	ego:, no:s, noi, no:, wo:s, voi, vo:, homo:, spo:s, flo:rem, fjo:re, flo:r, so:lem, no:men, no:me, no:minem, kogno:skere, ko:gita:re, ko:nsuere, ekspo:nere, ko:la:re, to:tus, po: k, duo:s, kʷando:, kʷo:modo, no:n
3	z	zə, zo, pluza, kalizēj, kəlizēj, mǎze, mēzax, mēzar, mǎnza, kuzitax, kuzitar, naze, ze zix, zəzək, zəzer, zawrə, zixə, zixar, zira, əʃtrizir, əʃtrizir, əstərzi, zəte, zejtar, zwe, z ogax, zuʁar, zuga, zuka, zəle, zilar, zəla, inʃindze, laʁz, du:ze:
4	ə	zə, dənə, dɔamənə, ɔmə, əspəzə, mərit, əspəs, marə, pasəre, ʎunə, lunə, əstəl, ajyʁwə, apə, pluza, tərə, tsarə, newlə, negurə, tənəbrəs, ʃɛaʃə, limbə, bəwɾə, mǎnza, musəga, musəgar, musəʁa, əskupi, səʃe, kuneʃə, pənsa, pəsa, temə, biwɾə, nəga, məta, batrə, kəsa, rawrə, rəza, rəska, nəda, nəbəga, ʃəmine, kəmina, vənix, bəni, əstendrə, zawr ə, zəʃɛa, əsta, ləve, ʎəba, əlsa, tərsə, kawrə, kədə, tənix, təni, ifprəməx, ifprəmer, əspremə, sərar, səra, əʃtrizir, əʃtrizir, əstɛrə, frəga, frəsa, əstərzi, əfuga, tɾəwɾə, ə mpeɾə, zəte, ʎənsa, kənta, əskorə, korə, zəle, zəla, gləsa, krəma, ənsendrə, əlgu, altə ə, amplə, pəzǎ, pəzat, pəti, pətit, əstret, məny, mənut, mərunt, dəlikat, dowə, kwat rə, əʎa
5	j	jo, estreja, jubja, jaθer, jebar, aja
6	o	jo, io, jo, nos, no, bos, vof, vos, vose, voste, moʎʎe, domina, doʁa, donə, hominem, ombre, omēj, om, homo:, wəmo, nipo, nino, sponsa, esposa, ispoza, ifpozə, moʎʎe, mariðo, marito, sponsus, esposo, spəzo, ispozu, ifpozu, sokius, səʃo, sots, wazo, utʃ ello, paxaro, passero, fruto, frutto, flor, floʁ, naso, na:so, sol, sole, soliculus, soreli, o, pʝodʒa, ploje, lago, lago, θjelo, ʃɛlo, bjento, vento, fokum, fwego, fwəko, fogu, f oʁu, fok, apɔ, anno, nomi, nomi, nombre, komedere, komer, kome, morde:re, moʁd ʁ, moʁðer, moʁðek, morsika:re, moskar, morsikare, konspuere, kogno:skere, konοθe r, konoffere, kopeseʁ, koposi, koʒitare, dormi:re, dormir, dormire, doʁmiʁ, dormi, morir, morire, moʁek, okki:dere, kosaɹ, nwotare, wola:re, vole, bolar, volare, voax, zvolare, zvolar, ose, torna:re, tornar, tornare, toʁnaʁ, toʁkʷe:re, toʁθer, appek tora:re, fʁote, frotar, arronʃare, koser, komputa:re, kontar, kontare, konta:, sporre, joka:re, ʒokare, zogax, kolar, kolare, koax, skorrere, ifkoʁek, əskorə, skorit, korer, korrere, koʁek, korə, kori, ustolare, omne:s, opɾi, todo, tutto, todʉ, toðu, tot, muʃo, molto, mol, molc, tanto, okə, alguno, alkuno, poko, pəko, powku, oʁk, otro, altro, owtru, mapo, mapɾo, majjorem, longum, longo, lungo, ʎoɳ, laryo, largo, lato, anʃo, ampjo, lerdo, lordo, pesaðo, pekeɾo, pitʃino, pikkolo, korto, korto, angosto, angusto, estrefjo, stretto, menudo, minuto, delyaðo, delikato, sottile, uno, dos, dowə, kʷattw or, kwatro, kwattro, θinko, kwando, kʷo:modo, komo, kome, komu, no, non

## Appendix 4 - Segments used in the word list

7	i	io, nō:i, voi, fe:mina, femmina, fēmine, mulierem, domina, hominem, infantem, in fante, ifēfi, nipo, nino, ispoza, mulier, mæxi, mariðo, marito, maridu, mæriðu, mari t, mærit, ispozu, sokius, mōri, piskem, pejfi, avi, awikellum, fæqi, nariθ, nariþe, nar is, næriþ, solculus, soreli, istrelæ, pluwia, plqi, ka:li:ginem, kalina, kalidžine, kalizēj, kēlizēj, tinjeblas, kajkia, vint, nomi, nō:minem, ling <sup>w</sup> a, lingwa, limbə, bibere, bevi, mwardi, morsika:re, morsikare, kuspiæ, kuspiæ, eskupiæ, æskupi, fti, kinəh, koŋosi, ko:gita:re, kuide, kwidar, kođitare, kuzitaæ, kuzitar, time:re, temi, trima: dæmiks, dormir, dormire, dæmiks, durmir, durmi, dwaæmi, dormi, vivæ, bibir, vivere, viveæ, viver, biwra, vivi, via, muæiæ, morir, morire, muri, mæri, muri, tu:tari, æksis, utfid ere, uksi, ufide, batir, bati, kaptia:re, naviga:re, navigare, naviga:, naviga, fæmine, kaminar, kamminare, kēmiæ, kēmiæ, kēmina, fimine, fjamina, ambita:re, vən iæ, benir, venire, viæ, vir, bəni, vini, vipir, veni, istēdeæ, iftēder, ekstinde, zezis, jesi, altia:re, ziæ, xirar, đirare, zirar, zira, đira: viæ, birar, virare, virar, bira, kēir, tən iæ, tēni, tini, tinji, tsine, eksprimere, ekspremir, ifpræmæ, ifpræmer, esprimi, string ere, estrepiæ, strindžere, æftrizir, æftrizir, stringe, frika:re, frikta:re, frisar, estarsir, æstærzi, esqije, limpida:re, limpjar, tira:re, tiæ, tirar, tirare, fira, tira, tire, tira: imp ingere, impindžere, impindže, xita, liga:re, lie, liya, kuþire, kuzi, kuzi, diæ, deθir, di re, dizer, di, ziþe, ludir, fluita:re, fluitare, fluir, fluire, flwiæ, flwir, flui, eskurir, i fkoææ, ifkurer, kuæiæ, kori, glakia:re, inglakia:re, inkendere, inþendjare, inþindže, oŋri, altri, alius, grēđi, grawis, gravi, grevi, pittitus, pæti, pætit, piti, pittinus, pitfi no, putsin, pitulus, pikkolo, pitful, brewis, brævi, striktus, istrejt, minu:tus, minuto, miudu, miuðu, minu, minu:t, de:lika:tus, delikato, dælikat, sutil, sottile, suþiw, suþ il, su:ti, subtsire, wiridem, kwatri, θinko, finkwe, sink, fink, finþ, isi, aki, kwi, eki, illak, ibi:, vi, ai, ei, k <sup>w</sup> is, ki, kwi, fine, k <sup>w</sup> id, ni, i, fi
8	w	ew, jew, wo:s, wōmo, pwasō, awem, aw, awikellum, wazo, sōw, etwal, aywa, akkwa, agwæ, ajwæ, e:w, pluwia, saw, nēvwæ, newlæ, sēw, wentum, fwego, fwoko, lengwa, lingwa, ligwæ, bwæ, bēwra, mwardi, sawwæ, kwidar, dwaæmi, wi:were, biwra, n waje, tuwe, rawra, nwotare, wola:re, vwar, wenire, zawra, swæ, fwaæ, kawra, law are, suwe, trēwra, zwe, đuwe, flugtwar, flwiæ, flwir, awgū, powku, owtru, aw, gr awis, grew, grew, brewis, brew, etæwa, dewgadu, suþiw, wiridem, dowæ, tæwa, k <sup>w</sup> a ttwor, kwatro, kwattro, kwatru, kwatra, kwat, kwatri, finkwe, kwi, kwi, kwa, kw æ:, kwando, kwēdu, kwan, kwand, kwant
9	ɔ	zɔ, nɔjs, nɔf, vɔjs, vɔse, dɔnna, dɔnə, dɔne, ɔm, ɔmēj, ɔmə, ɔm, wɔmo, spɔza, æspɔzə, spɔzo, æspɔs, sɔfɔ, flɔ, sɔw, sɔł, sɔl, sɔlɔ, sɔlej, njɔly, fwɔko, fɔk, nɔm, nɔŋ, mɔrdere, kɔnetæ, kinəh, dæmiks, mæri, æksis, vɔle, tæwæ, tærfere, tærsə, lɔji:, kɔle, tɔ, pɔko, pɔ k, kɔm, kɔmē
10	đ	đi, pjodđza, kalidžine, mandžare, sudže, kođitare, kuđeta, nēđi:, merđere, merđe, đatfe:re, đere, đirare, đira:, strindžere, strindže, terđere, fterđe, trađe, impindžere, impindže, đettare, đete, đokare, đuwe, đuja:, skurđe, kurđe, đelare, đale, isendž rar, grēđi
11	ɪ	đi, naris, isendžiar
12	j	jo, jew, nɔjs, vɔjs, femjə, femeje, mujere, mujere, uþjel, frujt, fjo:re, jubja, pjodđza, p loje, ploaje, tjera, tjere, njɔly, njebla, nebbja, tinjeblas, sjel, θjelo, bjento, skujpa, kuj da, fjamina, jake:re, jesi, fjade, tinji, esqije, suja:, limpjar, jakta:re, lɔji:, jake:re, đuja:, gjatfjare, fjammare, ēsādje, inþendjare, isēdjar, majjorem, ampjo, kjen

## Appendix 4 - Segments used in the word list

13	n	<p>no:s, nu, nos, no:i, no:js, no:f, no, no:, noj, fe:mina, femmina, femine, domina, donna, done, donə, done, doamnə, hominem, infantem, infante, fante, nipo, nino, nenēj, n en, sponsa, sponsus, na:sus, ne, naso, na:so, nas, na:s, nas, nariθ, nariθe, naris, nariθ, na:ris, lu:na, lyn, luna, lunə, løn, lune, lunə, ka:li:ginem, kalina, kalidžine, nebula, njoly, njebla, nebbja, nevwe, newlə, negurə, tene:braj, tene:bre, tene:bra:s, tenəb, ti njeblas, tene:bre, tenebrəs, wentum, bjento, vento, ben, vint, vint, annum, anno, en u, an, no:men, nō, no:me, nomi, nomi, nōm, nō, nōj, nume, no:minem, nombre, lin g<sup>w</sup>a, lingwa, lənge, manduka:re, mandukar, mandžare, minka, konspuere, kogno:sk ere, kōnetk, konoθer, konoffere, kunəfə, kinoh, kunqafte, pensare, pensar, pensare, pənsa, neka:re, nwaje, nəga, neka, anegar, annegare, pugna:re, nata:re, nadar, nwot are, nada, nəðar, nəda, nada:, naviga:re, naze, nabegar, navigare, naviyax, naviyar, nəbəga, nədži:, naviga:, naviga, fəmine, kaminar, kamminare, kəmina, fimine, fja mina, andar, andare, wenire, vənix, benir, venire, bəni, vini, veni, ekstendere, ekst ender, estendere, əstendrə, ekstinde, sedenta:re, sentar, senta:, torna:re, tuxne, torn ar, tornare, toxnax, turnar, turna, turne, torna:, turna, tene:re, tənix, tener, tenere, təni, tini, tinji, tsine, stringere, strindžere, stringe, strēngi:, strindže, enxugar, impi ngere, impindžere, impindže, lankeare, lanθar, lanθare, lənsa, lanci:, lanθa:, e:run ka:re, arankar, arrontžare, ko:nsuere, kontar, kontare, konta:, e:numera:re, enumere, enumerar, enumerare, enumera, numara, ekspō:nere, spune, kanta:re, kantar, kant are, kənta, canta:, kinta, inglakiare, ingetsa, inkendere, enθender, inθendjare, ise ndžiar, ənsendrə, inθindže, omne:s, tantus, tanto, tant, tanc, alguno, alkuno, magn um, grandem, grande, grande, gran, grant, longum, longo, lungo, lunk, lung, anθo, pe:sant, pesante, pezant, pittinus, pitθino, pekenu, pikenu, putsin, angustus, angos to, angusto, minu:tus, mənny, menudo, minuto, mənut, minu, minu:t, mərunt, u:num, uno, un, unu, k<sup>w</sup>i:nk<sup>w</sup>e, θinko, θinθ, kjen, θfine, k<sup>w</sup>ando:, kwando, kwan, kwand, k want, kind, no:n, nō, no, non, nēw, nu, nek, ni, ne, nēj, nēj, nē</p>
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## Appendix 4 - Segments used in the word list

14	s	<p>no:s, nos, nɔjs, wo:s, bos, vɔjs, bus, vos, usted, vose, vɔse, voste, sponsa, esposa, spɔz a, ispoza, əspɔzə, mari:tus, sponsus, esposo, spɔzo, ispozu, əspɔs, spo:s, sokius, sɔffo, sots, piskem, pɛs, pwasō, useʌ, passerem, passero, pasɛru, pasəre, fruk:tus, na:sus, n aso, na:so, nas, na:s, nas, naris, na:rɪs, so:lem, sol, sole, sɔw, sɔt, sɔl, sɔlɔ, sqare, solic ulus, sɔləj, soreli, ste:lla, estreja, stella, istrelɐ, əstɛl, stɔ:l, stɛle, stɛa, sa:lem, sɛl, sal, sale, saw, se, sa:l, sare, tene:bra:s, tinjeblas, tənɛbrəs, fumasɐ, sjɛl, sɛw, sɛl, si:ɤ, mor sika:re, moskar, morsikare, musəga, musəgar, musəya, murseka, su:gere, syse, suga ɤ, sugar, sysi:, suɖɛ, konspuere, kɔspye, kuspiɤ, eskupiɾ, əskupi, skujpa, sputere, es putar, sputare, spuda:, skire, sapere, savwaɤ, saber, sabɛɤ, səber, səβɛ, savø:ɾ, save:, kogno:skere, kopeseɤ, kupiser, koposi, pe:nsa:re, pãse, pensar, pensare, pɛsaɤ, pɛsar, pənsa, pɛse, peɲsa:, pəsa, ɔksiɤ, uksi, fase, kasaɤ, kɛsar, kəsa, fjesi:, rasar, rasare, ra sa:, raskar, rəska, kosaɫ, kusar, ekstendere, ekstender, estendere, istɛdeɤ, əstendrə, ekstinde, jesi, sede:re, swaɤ, ser, sedere, seɤ, sedenta:re, sentar, sɛtar, senta:, sta:re, estar, stare, əsta, ɛs, sta:, sta, ose, aɫsa, aɫsar, əlsa, hɔ:si:, turser, tɔrsə, segurar, sigur aɤ, siyurar, eksprimere, ekspremiɾ, spremere, əspremə, esprimi, skreme, serrere, se rar, seɤa, sərar, səra, serare, seɤe, serrare, siɤar, səre, stringere, estrepiɾ, strindɖere, əstreɲə, stringe, strɛngi:, strindɖe, frisar, frəsa, ekstergere, estarsic, əstərzi, eksu:ka: re, esqije, suwe, suja:, uska, pulsare, puse, pulsare, pu:si:, pulsa:, pulsa, lãse, lɛsa, lɛ sar, ʌnsa, ko:nsuere, koser, ɔqase, ekspɔ:nere, sporre, spune, ekskurrere, eskuric, s korrere, əskorə, skoric, skurdɖe, glase, gləsa, ɛsɔdɖe, ɪsendɖiar, ɪsɛdɖar, ənsendrə, ustu la:re, ustolare, ustura, omne:s, to:tus, multus, tantus, paɯkus, alius, grawis, lurdus, pe:sant, pesaðo, pesante, pittitus, pittinus, pitulus, kurtus, brewis, angustus, angos to, angusto, ɪngust, striktus, estreɟfo, stretto, istrejtɯ, əstɾɛt, stɤø:, stɾɛt, strɪmt, mi nu:tus, de:lika:tus, subti:lem, sutil, sottile, sufɟiw, suptil, su:ti, suti:l, subtsire, duo:s, dos, dojs, duas, duɐs, tre:s, tres, tɾɛs, sɛk, siku, siɲk, isi, kʷis, si:k</p>
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## Appendix 4 - Segments used in the word list

15	u	<p>nu, vu, bus, tu, usted, mulierem, muxer, мулех, мулер, муле, muir, mujere, epuz, mulier, muxer, мулех, мулер, муле, muir, mujere, maritus, maridu, meridu, sponsus, epu, ispozu, ifpozu, sokius, awikellum, utffello, useł, uffjel, paseru, fruktus, fruto, frutto, frute, frujt, frut, frukt, na:sus, soliculus, luna, luē, lunə, lune, lunə, pluwia, jubja, fuvē, pluzə, lakum, lagu, layu, nebula, negurə, fumata, fuma:ta, fuma sē, fumate, kajlum, wentum, vētu, fokum, fogu, foγu, annum, enu, nume, kumer, manduka:re, mandukar, murðer, musəga, musəgar, musəγa, murseka, sugax, sugar, cuca: suðge, konspuere, kuspix, kuspir, eskupir, əskupi, skujpa, sputere, esputar, sputare, spuda: kupiser, kunefə, kunəqaste, kuzitar, kuzitar, kujda, kuðgeta, durmir, durmi, durmi: mukix, muker, muri, murit, muri, tuwe, utffidere, uksi, uffide, pugnare, pupar, puppare, pupa, battuere, kusar, bula, zbura, lua, tukne, turnar, turna, turna, turser, tumbar, tumba, tume, segurar, sigurax, siγurar, enxugar, affugare, ẽfugar, ẽfuyar, əfuga, suwe, suja: uska, pulsa:re, puse, puxar, pulsare, puřar, pulsa: pulsa, e:runka:re, aruřka, ko:nsuere, kudx, kuřfire, kuzer, kuzi, kuzi, komputa:re, kumta, e:numera:re, enumeke, enumerar, enumerare, enumera, numara, spune, ludir, xugar, zuγar, zuga, đuwe, đuja: zuka, flu:ktua:re, flugtwar, fluttuare, flutuax, flutuar, fluktua, fluctua, fluita:re, fluitare, fluere, fluir, fluire, flui, kule, kuar, kuřa, ekskurrere, eskurir, ifkurer, skurðge, kurrere, kuxix, kuxer, kurðge, bruřfare, bruza: ustula:re, ustolare, ustura, to:tus, tu, tutto, todū, toðu, dut, multus, mu, muřo, mũjtu, mult, tantus, tētu, tētu, alguno, alkuno, əlgu, pařkus, powku, owtru, alius, magnum, longum, lungu, lōgu, lunk, lung, largum, lařgu, largu, la:tum, latu, amplum, ẽfu, lurdus, lux, pezadu, pizaðu, pittitus, pittinus, pekenu, pikenu, putsin, pitulus, pifful, kurtus, kuř, kuřtu, kurtu, kurt, kurt, angustus, angusto, ingust, striktus, istr ejtu, iftrejtu, minutus, menudo, minuto, miudu, miuðu, mənut, minu, mərunt, de:likat:us, dewgadu, deřyaðu, subti:lem, sutil, suřfiw, suptil, suti:l, subtsire, u:num, uno, un, uř, unu, duo:s, duaj, due, duas, duēs, duēř, kwatru, patru, siku, ekkumhi:k, kwēdu, komu, kum, nu</p>
16	f	<p>nəř, vof, ifpozē, ifpozu, peřfe, peřfi, peřfi, peř, peřte, nərif, iftrele, fuvē, treveř, kuspir, řti, konofřere, kunefə, kunəqaste, řase, řařkař, řeřkar, řəmine, mařfe, iftēder, ředęa, řtar, alřa: řwař, ifprəmek, ifprəmer, əřtrĩzĩr, əřtrĩzĩr, ifřřigar, ifřřĩγar, řte rðge, affugare, ẽfugar, ẽfuyar, əřuga, puřar, řāte, ifkořek, ifkurer, ẽřu, iftrejtu, dojř, duēř, treř, ři</p>
17	oj	<p>noj, voj, froj, dojs, dojř, doj</p>
18	v	<p>vu, vo:i, vəjs, vof, vos, vo:, voj, vose, vəse, voste, avi, avi, fuvē, nəvwē, treveř, vā, v ento, vētu, vē, vint, vint, bevi, savwař, savø:ř, save:, vivx, vivere, viveř, viver, vivi, via, naviga:re, navigare, naviγax, nəviγar, naviga:, naviga, vole, volare, voax, vwar, vōle, zvolare, zvola:, vənix, venire, viř, vir, vini, vĩni: veni, levare, ləve, levare, le vař, livar, leva:, viře, virare, virar, lave, lavare, ləvar, lava:, gřav, grēve, gravi, grav i, grav, grēvi, brēve, brēvi, brēvi, veř, verde, verdi, vērt, veř, vērt, verde, vi</p>
19	b	<p>bos, bus, embra, fembra, ombre, abe, jubja, nebula, njebła, nebbja, tene:braj, tē:nebre, tene:bra:s, tenēbř, tinjebłas, tē:nebre, tēnebrəs, bjento, ben, nombre, limbə, bibere, bwax, beber, bere, bebeř, biřer, bewrə, bø:ř, bevi, beřa, saber, sabēř, səber, bibir, biw rə, battuere, batř, batir, battere, bateř, bēter, batrə, bate, bati, nabegar, nəbəga, bol ar, bula, zbura, ambita:re, benir, bəni, jebar, řəba, birar, bira, tōbe, tumbar, tōbař, t ōbar, tumba, břyle, bruřfare, břu:le, bruza: flābe, grabe, brewis, břeř, brebe, brēve, brēvi, brēvi, brew, břeř, subti:lem, subtsire, berde, ibi:</p>

## Appendix 4 - Segments used in the word list

20	t	tu:, ty, tu, usted, voste, infanTEM, infante, fante, ifēti, mari:tus, marito, marit, mar it, mērit, mā:trem, peſte, utſello, fru:ktus, fruto, frutto, frutē, fruĵt, frut, frukt, st e:lla, etwal, estreja, stella, istrelē, iſtrele, əstəl, stə:l, stēle, stēa, la:t, terra, tē, tjera, terra, tē, tē, tē, tē, tē, tjere, tene:braj, tē:nebre, tene:bra:s, tenēb, tinjeblas, tē:n ebre, trēvəſ, tēnebrəs, fu:mā:ta, fumata, fuma:ta, fumate, wentum, bjento, vento, v ētu, vint, vint, sputere, esputar, sputare, ſti, kōnet, kunqafte, ko:gita:re, kođitare, kuzita, kuzitar, kuđeta, time:re, temer, temere, temē, timer, temə, temi, teme, tr emere, tremar, tremare, tremē, trimer, trima:, tu:tari, tpe, tuwe, macta:re, mate, m atar, mata, mētar, mēta, utſidere, battuere, bat, batir, battere, bate, bēter, batrē, bate, bati, kaptia:re, katfare, nata:re, nwotare, ambita:re, ekstendere, etā, ekste nder, estendere, istē, iſtēder, əstendrə, ekstinde, sedenta:re, sentar, sētar, senta:, sta:re, et, estar, stare, iſtar, əsta, sta:, sta, altiare, altfa:, torna:re, tūne, tornar, to rnare, tōna, turnar, turna, tu:rne, torna:, turna, tork <sup>w</sup> :ere, tōd, torθer, tōrfer, turser, tōrsə, tōarfe, tōbe, tumar, tōba, tōbar, tumba, tume, tene:re, tēn, tener, t enere, tē, ter, tēni, tini, tinji, appektora:re, apretar, ēpirtar, stringere, etē, estr epir, strindgere, əſtrizir, əſtrizir, əstrejə, stringe, strēgi:, strindge, frikta:re, fvote, frotar, frettare, tergere, tēdgere, ekstergere, estarsir, əstərzi, ſterdge, tira:re, tixē, ti rar, tirare, tira, tire, tira:, trahere, tē, trarre, traze, trēzer, trēwra, traj, trađge, jak ta:re, zəte, đettare, zejtar, xita, đete, apta:re, atar, ętar, komputa:re, kōte, kontar, k ontare, kōtar, kumta, kōte, konta:, kantare, ſāte, kantar, kantare, kētar, kēnta, ſāt e, cantar, kinta, flu:ktua:re, flyktpe, flugtwar, fluttuare, flutu, flutuar, fluktua, fluctua, fluita:re, fluitare, gĵatfjare, ustulare, ustolare, ustura, to:tus, tu, todo, tut to, todū, tot, tō, dut, multus, molto, mūĵtu, mult, tantus, tanto, tētu, tētu, tant, tanc, alter, ot, otro, owtru, altrə, ōt, altri, alt, grant, la:tum, lato, latu, lat, p e:sant, pesante, pəzat, pezant, pittitus, pēti, pētit, piti, pittinus, pitfino, pitulus, ku rtus, korto, korto, kuĵtu, kurtu, kurt, kurt, angustus, angosto, angusto, ingust, stri ktus, etwa, estrefo, stretto, istreĵtu, iſtreĵtu, əstret, stō:, stret, strimt, minu:tus, m inuto, mēnut, minu:t, mērunt, de:lika:tus, delikato, dēlikat, subtilēm, sutil, sottile, suptil, su:ti, suti:l, vēt, vēt, tre:s, tēwa, tres, tre, tref, trēs, trō:, tre:, trej, k <sup>w</sup> attwor, kat, kwatro, kwattro, kwatru, kwatrə, kwat, kwatri, patru, kwant, ĵemu:t, et
21	u:	tu:, u:hē, fru:ktus, lu:na, plu:, fu:mā:ta, fu:k, su:gere, tu:tari, tu:rne, eksuka:re, pu: si:, lu:dere, flu:ktua:re, bu:le, ku:, minu:tus, minu:t, du:ze:, su:ti, u:num, ĵemu:t
22	y	ty, fry, lyn, njoly, fyne, syse, sysi:, kōspye, gya:re, flyktpe, flye, bēyle, mēny
23	d	usted, domina, dam, doĵa, dōna, donē, dōnə, dēm, dōne, dōamnə, maridu, mā:dre, pĵodĵa, komedere, manduka:re, mandukar, morde:re, mōd, mōrdere, mōdē, m wardi, spuda:, kŵide, kwidar, kujda, kēdē, dormi:re, dōm, dormir, dormire, do m, durmir, durmi, dwami, durmi:, dormi, okki:dere, utſidere, utſide, ra:dere, r adere, rada:, rade, nadar, nada, nada:, andar, andare, ēda, ēdar, ekstendere, etā, ekstender, estendere, istē, iſtēder, əstendrə, ekstinde, sede:re, sedere, ſe dēa, sedenta:re, tōd, kadere, kadere, ĵjade, kōdēa, epēdē, etēdē, limpida:re, kud , di:kere, di, deθir, dire, dizer, di, di:, di:, lu:dere, ludir, arde:re, ađ, arder, arde re, ađē, erder, arde, inkendere, ēsādje, enθender, inĵendjare, īsēdjar, ənsendrə, i nĵindze, todo, todū, dut, grandem, grande, grande, grēdi, lurdus, lerdo, lordo, peza du, menudo, miudu, de:lika:tus, du:ze:, dēyađo, delikato, dewgadu, dēyađu, dēlika t, wiridem, berde, verde, verdi, verde, duo:s, dō, dos, dojs, doĵ, dō:, doj, duaj, due, d owə, duas, duēs, duēſ, k <sup>w</sup> id, k <sup>w</sup> ando:, kwando, kwēdu, kwand, kind, k <sup>w</sup> o:modo

## Appendix 4 - Segments used in the word list

24	f	fe:mina, fam, femmina, femeꝛ, femjꝛ, fembra, fœm, fēmine, femeje, infantem, ãfã, infante, fante, ifẽfi, ifẽti, efã, fruktus, fꝛqi, fruto, frutto, frutꝛ, frujt, fꝛy, frut, f rukt, flo:rem, flœꝛ, flor, fjo:re, floꝛ, flɔ, flø:ꝛ, flo:r, flɔare, fu:ma:ta, fyne, fumata, fuma:ta, fumasꝛ, fumate, fokum, fɔ, fwego, fwɔko, fogu, foyu, fɔk, fɔ:; fu:k, fok, frika:re, fꝛeje, fregar, fregar, fræga, froj, frea, freka, iffrigar, iffriyar, frikta:re, f ɔote, frotar, frettare, frisar, fræsa, flu:ktua:re, flyktꝛ, flugtwar, fluttuare, flutuaz, flutuar, fluktua, fluctua, fluita:re, fluitare, fluere, flye, fluir, fluire, flwiꝛ, flwir, flui, flamma:re, flãbe, flamear, fjammar, flama, flagra:re, flagꝛ, flagrar, flagrar e, flagꝛ, flagrar, bꝛef, bꝛef
25	e:	fe:mina, stella, tene:braj, tene:bra:s, morde:re, save:, pe:nsa:re, time:re, jake:re, dꝛaf e:re, sede:re, tork <sup>w</sup> :re, tene:re, e:runka:re, e:numera:re, arde:re, omne:s, pe:sant, de:l ika:tus, du:ze:, tre:s, tre:
26	m	fe:mina, fam, embra, femmina, femeꝛ, femjꝛ, fembra, fœm, fēmine, femeje, mulier em, muxer, moλλe, muļeꝛ, muļer, muļe, muir, mujere, domina, dam, dœm, dɔam nɔ, hominem, ɔm, ombre, omẽ, omẽ, ɔmɔ, ɔm, om, homo:, wɔmo, infantem, mulier, muxer, moλλe, muļeꝛ, muļer, muļe, muir, mujere, mari:tus, maꝛi, mariðo, marito, maridu, mæriðu, marit, mari:t, mærit, ma:trem, meꝛ, maðre, ma:dre, mẽ, maꝛ, meꝛ, mɔri, piskem, awem, awikellum, passerem, flo:rem, so:lem, lakum, mare, meꝛ, maꝛ, maꝛ, mar, meꝛ, ma:ꝛ, sa:lem, ka:li:ginem, fu:ma:ta, fyne, fumata, fuma:ta, fumasꝛ, fumate, kajlum, wentum, fokum, annum, no:men, no:me, nomi, nomi, nɔm, nume, no:minem, nombre, limbə, komedere, komer, kome, kumer, manduka:re, mãze, ma ndukar, mandꝛare, mẽzaꝛ, mẽzar, mæꝛza, mari:, maꝛja:, minka, mordere, moꝛdꝛ, moꝛðer, mɔrdere, moꝛdeꝛ, murðer, mwardi, morsika:re, moskar, morsikare, musəga, musəgar, musəya, murseka, time:re, temer, temere, temek, timer, temə, temi, teme, tremere, tremer, tremare, tremek, trimer, trima:, dormire, dɔꝛmiꝛ, dormir, dormire, dɔꝛmiꝛ, durmir, durmi, dwaꝛmi, durmi:, dormi, muꝛiꝛ, morir, morire, moꝛek, muꝛ er, muri, mɔri, muri:, muri, macta:re, mate, matar, mataꝛ, mætar, mæta, maſja:, fœm ine, kaminar, kamminare, kəmiꝛaꝛ, kəmiꝛar, kəmina, ſimine, ſjamina, maꝛfe, m a:rſi:, mergere, mæꝛðere, mæꝛðe, ambita:re, tumbar, tumba, tume, esprimere, eks premir, spremer, iſpremeꝛ, iſpremer, əspremə, esprimi, skreme, limpida:re, limpjar, impingere, impindꝛere, əmpɛrə, impindꝛe, komputa:re, kumta, e:numera:re, enume ɔe, enumerar, enumerare, enumera, numara, krema:re, kꝛame, kemar, kremare, k ɛjmare, kejmæ, kꝛəma, flamma:re, flamear, fjammar, flama, omne:s, multus, mu, muſo, molto, mũjtu, mol, molc, mult, magnum, maꝛo, maꝛo, grandem, majjorem, mare, longum, largum, la:tum, amplum, ampjo, amplə, strimt, minu:tus, mæny, me nudo, minuto, miudu, mænut, minu, minu:t, mærun, subti:lem, wiridem, u: num, ekkumhi:k, k <sup>w</sup> em, k <sup>w</sup> o:modo, kɔm, komo, kome, komu, kɔmẽ, ſfemu:t, kum



## Appendix 4 - Segments used in the word list

27	a	<p>fe:mina, fam, embra, femmina, fembra, domina, dam, dopa, dōnna, infantem, inf ante, fante, sponsa, esposa, spōza, ispoza, mari:tus, maṛi, mariḏo, marito, maridu, marit, mari:t, maḏre, marə, pwasō, awem, abe, avi, avi, aw, awikellum, wazo, passe rem, paxaro, passero, paseru, pasere, naso, nas, nas, nariḡ, nariḡe, naris, lu:na, luna, ste:lla, etwal, estreja, stella, ak<sup>w</sup>a, aṡwa, akkwa, agwə, age, apə, pluwia, jubja, pjo dḡa, lakum, lak, lago, lago, lagu, layu, ʎak, mare, mar, maṡ, mar, sal, sale, saw, sar e, terra, tjera, terra, tsarə, kalina, kalidḡine, kalizēḡ, nebula, njebla, nebbja, tinjeblas, fu:mata, fumata, fuma:ta, fumasə, fumate, kajkia, annum, aṡo, anno, aṡ, aṡ, an, li ng<sup>w</sup>a, lengwa, lingwa, mandukare, mandukar, mandḡare, mēḡaṡ, mēḡar, məṡza, m aṡi: maṡja: minka, mwardi, moskar, morsikare, musəga, musəgar, musəṡa, murse ka, sugaṡ, sugar, skujpa, esputar, sputare, sapere, savwaṡ, saber, sabeṡ, savḡ:ṡ, save:, kwidar, kodḡitare, kuzitaṡ, kuzitar, kujda, kuḡeta, pensaṡ, pensare, pēsṡ, pēsar, p ənsa, pəsa, tremare, dwaṡmi, via, nəga, neka, anegar, annegare, macta:re, mate, ma tar, mataṡ, mētar, mēta, maḡja: puṡar, puṡṡare, puṡa, battuere, batṡ, batir, battere, bateṡ, batrə, bate, bati, kaptia:re, fase, kaḡar, katḡare, kasṡ, kesar, kəsa, caḡa: rae r, radere, ʡaṡ, rawrə, rada: rade, rasar, rasare, ʡazaṡ, ʡəzar, rəza, rasa: raskar, ʡa fkaṡ, ʡəfkar, rəska, kosaḡ, kusar, nata:re, nadaṡ, nwotare, nadaṡ, nēḡar, nēda, nad a: navigare, naḡe, nabegar, navigare, naviṡaṡ, nēviṡar, nēḡaga, naviga: naviga, bo lar, volare, voaṡ, vwar, bula, zvolare, zburā, kaminar, kamminare, kəmiṡaṡ, kəmiṡ ar, kəmina, ḡjamina, maḡse, ambita:re, andar, andare, ēdaṡ, ēdar, jakere, jaḡer, ḡ aḡe:re, zawrə, swaṡ, sentar, sētar, estar, stare, iḡtar, əsta, sta, jebar, levare, levaṡ, li var, ʎəba, lua, altia:re, alḡar, altsare, aḡsa, aḡsar, əlsa, altḡa: tornar, tornare, toṡnaṡ, turnar, turna, turna, xirar, ḡirare, zirar, zira, birar, virare, virar, bira, kadere, fwaṡ, kaer, kadere, kawrə, ḡjade, tumber, tōbaṡ, tōbar, tumba, segurar, siguraṡ, siṡurar, serar, seṡa, sərar, səra, serare, ḡerar, serrare, siṡar, appektorare, apretar, epirtar, f regar, fregare, frəga, frea, freka, iḡfrigar, iḡfriṡar, frotar, frettare, frisar, frəsa, la ware, lave, laḡar, lavare, ləvar, lava: la, estarsir, enxugar, aḡfugare, ēfugar, ēṡurar, əfuga, uska, limpjar, liṡar, tirar, tirare, ḡira, tira, puxar, pulsare, puṡar, pulsa, trah ere, trarre, traze, traḡe, jakta:re, eḡar, ḡettare, zejtar, xita, lankea:re, lanḡar, lanḡa re, lēsa, lēsar, ʎənsa, lanci: lanḡa: arankar, arronḡare, arunḡa, legar, legare, ʎiṡa, lega, apta:re, atar, ətā, kontar, kontare, kōtar, kumta, enumerar, enumerare, enu mera, numara, kanta:re, kantar, kantare, kētar, kənta, canta: kinta, xugar, ḡokare, zogṡ, zuṡar, zuga, zuka, flugtwar, fluttuare, flutuṡ, flutuar, fluktua, fluctua, fl uitare, kolar, kolare, koaṡ, kuar, kuḡa, elar, ḡelare, zilar, zəla, ḡale, glakia:re, glase, ḡjatḡjare, gləsa, glaḡa: inglakia:re, ingetsa, bruḡare, kṡame, kemaṡ, kremare, kəjm are, kejməṡ, krəma, flamma:re, flamear, fjammare, flama, arde:re, aḡdṡ, arder, ar dere, aḡdeṡ, arde, flagra:re, flagṡe, flagrar, flagrare, flagṡaṡ, flagrar, inḡendjare, i sendḡjar, iṡēḡjar, ustolare, ustura, tantus, tanto, tant, tanc, alguno, alkuno, awḡū, a ḡḡū, alter, altro, altrə, altri, alt, alius, aw, aḡ, magnum, maṡo, maṡṡo, grandem, gra nde, grande, gran, grant, mare, largum, laṡz, larṡo, largo, laḡgu, largu, ʎark, lark, l arg, lato, latu, lat, amplum, anḡo, ampjo, amplə, grawis, ḡaṡ, grabe, gravi, gravi, g rav, pe:sant, pesaḡo, pesante, pezadu, pizaḡu, pəzat, pezant, angustus, angosto, ang usto, etṡwa, delyaḡo, delikato, dewḡadu, deḡyaḡu, dəlikat, duas, k<sup>w</sup>attwor, katṡ, k watro, kwattro, kwatru, kwatrə, kwat, kwatri, patru, aki, la, aja, əḡa, ai, kwa, k<sup>w</sup>a ndo:, kwando, kwan, kwand, kwant</p>
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## Appendix 4 - Segments used in the word list

28	r	embra, fembra, muxer, muʎer, ombre, muxer, muʎer, mariðo, maridu, mæriðu, mari t, maðre, marə, paxaro, pasəru, pasəre, fruto, frutə, frujt, flor, fjor:re, floare, nariθ, naris, nəriʃ, sqare, estreja, istrelə, iʃtrelə, mar, trəvəʃ, tənəbrəs, ʃer, nombre, beber, bere, biʃer, bəwrə, komer, kumer, mandukar, mandʒare, mēzar, morðer, murðer, mo skar, morsikare, sugar, kufpir, eskupir, esputar, sputare, saber, səber, konoθer, kup iser, kwidar, kuzitar, pensar, pensare, pēsar, temer, timer, tremer, tremək, trimer, d ormir, durmir, bibir, viver, biwrə, morir, muʎer, muri, anegar, matar, mētar, utʃide re, pupar, batir, bēter, batrə, kaθar, kəsar, raer, vøer, rawrə, rasar, vøzar, raskar, vø ʃkar, kusar, nadar, nwotare, nēðar, nabegar, nəviyar, bolar, volare, vwar, zvolare, zburar, kaminar, kamminare, kəminar, andar, ēdar, benir, venire, vir, ekstender, iʃt ēder, əstendrə, jaθer, dʒaʃe:re, zəzer, zawrə, ser, sentar, sētar, estar, iʃtar, jēbar, livar, alθar, aʃsar, tornar, turnar, xirar, dʒirare, zirar, zira, birar, virare, virar, bira, torθ er, kaer, kadere, kēir, tumbar, tōbar, tener, tenere, ter, segurar, siguraʋ, siyurar, ek spremir, əspremə, serar, sərar, θerar, sivar, apretar, epirtar, estrepir, əstreɲə, fregar, frəga, iʃfrigar, iʃfriyar, frotar, frisar, frəsa, laʃar, ləvar, estarsir, enxugar, əʃugar, əʃuyar, limpjar, lipar, tirar, ʃira, tira, puxar, puʃar, traze, trəzer, trəwrə, eʃar, zeitar, lanθar, lēsar, arankar, aruŋka, legar, atar, ətər, koser, kuzer, kontar, kōtar, enumer ar, enumera, deθir, dizer, kantar, kētar, ludir, xugar, zuyar, flugtwar, flutuar, fluir, flwir, kolar, kuar, eskurir, iʃkurer, skurdʒe, korer, kuʎer, kurdʒe, elar, zilar, kemar, kəjmare, flamear, arder, ərder, arde, flagrar, flagrar, enθender, isendʒiar, isēdjar, ə nsendrə, otro, owtru, altrə, grande, grēdʒi, grēdi, mare, larʒo, largu, ʌark, grabe, gr avi, gravi, grew, grew, lerdo, korto, kurtu, kurt, brebe, brəvi, brəvi, brew, estreʃo, is trejtu, iʃtrejtu, əstret, berde, verdi, vert, verde, tres, tref, kwatro, kwatru, kwatrə
29	v	femeə, femjə, done, iʃpozə, mæriðu, pasəru, frutə, nəriʃ, luə, istrelə, iʃtrelə, agwə, ʃ uvə, təkə, təkə, kəlizēj, nəvwə, trəvəʃ, fumase, ɐnu, liɡwə, səber, mētar, bēter, kəsar, vøer, vøzar, vøʃkar, nēðar, nəviyar, kəminar, kəminar, zəzək, zəzer, kēir, epirtar, lə var, trəzer, ətər, ərder, duəs, duəʃ, eki, ei
30	œ	fœm, dœm, flœk
31	ε	fəmine, efã, pəs, pəhō, utʃello, utʃjel, əstəl, stele, mək, səl, terra, təkə, tərə, tjere, nəv wə, tenəbək, trəvəʃ, sjel, ʃelo, səw, səl, vento, lənge, bəwrə, səβe, kənətək, kunəʃə, ʃesi:, nədʒi:, mēdʒere, estendere, etk, ɛs, spremere, səkə, əstreɲə, strəngi:, tərɖere, təkək, tr ɛwrə, əmpɛɲə, dʒete, intʃendjare, grəve, grəvi, bəkɛf, brəve, brəvi, brəvi, əstret, strət, d ɛʎaðu, vert, vək, vert, tres, kɛ, ɛ

## Appendix 4 - Segments used in the word list

32	1	<p>mulierem, mulier, awikellum, utfello, utfjel, flo:rem, flœx, flor, flox, flō, flō:x, flo:r, floare, so:lem, sol, sole, sōl, sōlō, soliculus, sōlej, soreli, lu:na, lyn, luna, luē, lōn, lune, lunə, ste:lla, etwal, stella, istrelē, iftrelē, əstēl, stō:l, stēle, pluwia, plqi, pluzə, pl u:x, ploje, ploaje, lakum, lak, lago, lago, lagu, layu, la:t, sa:lem, sel, sal, sale, sa:l, ka: li:ginem, kalina, kalidžine, kalizēj, kēlizēj, nebula, njoly, njebla, newlə, tinjeblas, k ajlum, sjel, θjelo, tsel, tsi:l, ling<sup>w</sup>a, lāg, leŋgwa, lingwa, liḡwə, lēu, lēngē, limbə, wola:re, vole, bolar, volare, bula, vōle, zvolare, zvolā, leva:re, ləve, levare, levax, li var, leva: lua, altia:re, alθar, altsare, əlsa, altfa: lawa:re, lave, laβar, lavare, ləvar, l ava: la, limpidare, limpjar, līpar, pulsare, pulsare, pulsa: pulsa, lankea:re, lāse, la nθar, lanfjare, lēsa, lēsar, lanci:, lanfja: liga:re, lie, legar, legare, lōji:, lea: lega, lu:de re, ludir, flu:ktua:re, flyktqe, flugtwar, fluttuare, flutuax, flutuar, fluktua, fluctu a, fluita:re, fluitare, fluere, flye, fluir, fluire, flwix, flwir, flui, ko:lare, kule, kolar, kolare, kōle, gela:re, zōle, elar, dželare, žilar, žōla, dḡale, glakia:re, glase, glōsa, gla:fja:, inglakia:re, bḡyle, bḡu:le, flamma:re, flābe, flamear, flagra:re, flagke, flagrar, flagr are, flagkax, flagrar, ustula:re, ustolare, multus, molto, mol, molc, mult, alguno, al kuno, əlgu, alter, altro, altrə, altri, alt, alius, longum, lō, longo, lungo, lōgu, lō, lunk, lung, largum, lax3, laryo, largo, laxgu, largu, lark, larg, la:tum, le, lato, latu, lat, a mplum, āpl, amplə, lurdus, lūx, lerdo, lordo, pitulus, pikkolo, piḡful, de:lika:tus, del yaðo, delikato, dəlikat, subti:lem, sutil, sottile, suptil, suti:l, illa:k, la</p>
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## Appendix 4 - Segments used in the word list

33	r	mulierem, mui:r, mujere, mulier, mui:r, mujere, maritus, marito, mari:t, m̄arit, ma:trem, ma:dre, m̄ori, passerem, passero, fru:ktus, frutto, frut, frukt, flo:rem, flo:r, nariſe, na:r̄is, soreli, mare, mar, ma:r, sare, terra, tjera, terra, t̄er̄a, tjere, tsar̄a, negur̄a, tene:braj, t̄enebre, tene:bra:s, t̄enebre, bibere, komedere, mandukare, morde:re, m̄ordere, mwardi, morsika:re, morsikare, mus̄egar, murseka, su:gere, konspuere, sputere, ski:re, sapere, kogno:skere, konoffere, ko:gita:re, kođitare, pe:nsa:re, time:re, temere, tremere, tremare, trima:, dormi:re, dormire, durmi, durmi:, dormi, wi:were, vivere, morire, muri:, muri, neka:re, annegare, tu:tari, macta:re, okki:dere, pugnare, pūpnare, battuere, battere, kaptiare, katſfare, ra:dere, raer, radere, rawr̄a, rada:, rade, rasar, rasare, r̄aza, rasa:, raskar, r̄aska, nata:re, navigare, navigare, wola:re, mergere, merđgere, merđge, ambita:re, andare, wenire, ekstendere, estendere, jake:re, đgere, sede:re, sedere, sedenta:re, stare, stare, leva:re, levare, altiare, altsare, torna:re, tornare, turna, tu:r̄ne, torna:, turna, gyra:re, đgirare, đgira:, virare, tork <sup>w</sup> e:re, t̄ortſere, turser, t̄ors̄a, t̄ortſe, kadere, kawr̄a, tene:re, eksprimere, spremere, iſpr̄amek, iſpr̄amer, esprimi, skreme, serrere, serar, s̄ara, serare, ōerar, serrare, appektora:re, stringere, strindgere, aſtr̄izir, aſtr̄izir, stringe, str̄engi:, strindge, frika:re, fregare, fr̄oj, frea, freka, frikta:re, frettare, frisar, lawa:re, lavare, tergere, t̄erđgere, ekstergerere, aſt̄er̄zi, ſterđge, eksu:ka:re, aſſugare, limpidare, tira:re, tirare, tire, tira:, pulsa:re, pulsare, trahere, trarre, traj, trađge, impingere, impindgere, jakta:re, đettare, lankeare, lanſfare, erunka:re, arankar, arronſfare, ligare, legare, apta:re, ko:nsuere, kuſſire, komputa:re, kontare, e:numera:re, enumerare, numara, di:kere, dire, ekspone:re, sporre, kantare, kantare, lu:dere, joka:re, đokare, flu:ktua:re, fluttuare, fluita:re, fluitare, fluere, fluire, ko:la:re, kolare, ekskurrere, eskurir, skorrere, aſkor̄a, skori:, kurrere, korer, korrere, kor̄a, kori, gela:re, đelare, glakia:re, gjatſjare, inglakia:re, brufare, bruza:, kremare, kremare, kr̄oma, flamma:re, fjammarere, arde:re, ardere, flagra:re, flagrare, inkendere, inſendjare, ustula:re, ustolare, ustura, alter, altro, altri, grandem, grande, gran, grant, majjorem, largum, largo, lark, larg, grawis, greve, grav, grevi, lurdus, lordo, kurtus, korto, kurt, brewis, breve, striktus, stretto, stret, strimt, m̄arunt, subtsire, wiridem, verde, v̄ert, tre:s, tre, tr̄es, tr̄o:, tre:, trej, k <sup>w</sup> attwor, kwattro, kwatri, patru
34	x	muxer, muxer, paxaro, xirar, enxugar, puxar, xita, xugar
35	λ	moλλe, muλek, muλer, muλe, moλλe, muλek, muλer, muλe, useλ, λun̄a, λak, λ̄aba, λ̄ansa, λiγa, λoγ, λark, əλa
36	в	muλek, muλek, maβi, mek, f̄v̄qi, fl̄oek, flok, fl̄o:ek, plu:ek, mek, maek, mek, tek, tek̄e, tēk̄e, te:ek, ten̄ek̄, si:ek, bw̄ak, bebek, b̄o:ek, m̄ēz̄ak, mōek̄, mōek̄, sugak, kuspik, savwak, sabek, k̄on̄et̄ek̄, kōp̄esek, kuzitak, p̄esaek, temek, k̄v̄ēdk̄, tremek, d̄ōk̄mīk, dōk̄mīk, d̄wāk̄mi, vīv̄ek, vīv̄ek, mūvik, mōek̄, mūker, matak, ōksīk, batk, batek, kasak, vaek, v̄eer, v̄aze, v̄azak, v̄ezar, v̄af̄kak, v̄ef̄kar, nadak, naviγak, voak, k̄em̄ir̄ak, māv̄se, ēd̄ak, v̄̄onīk, vīk, et̄ādk̄, iſt̄ēdek̄, zezīk, z̄ezek, swak, sek, et̄k, levak, tūk̄ne, tōk̄nak, zīke, vīke, t̄ōdk̄, ſwak, t̄ōbak, t̄̄onīk, tek, sīguraek, ep̄v̄ēdk̄, iſpr̄amek, seka, seke, sīkar, et̄k̄ēdk̄, f̄v̄eje, f̄v̄ote, tīke, t̄v̄ek, kudk, enumeke, dīk, di:ek, zogak, flutuak, flwīk, koak, iſkoek, kūvik, koek, kūker, b̄v̄yle, b̄v̄u:le, kv̄ame, kejm̄ake, av̄dk, av̄dek, flaḡke, flaḡvak, ot̄k, ḡv̄ā, ḡv̄ā, lak̄z, lak̄gu, ḡvak, luk, kuv, kūktu, ku:ek, b̄v̄ef, b̄v̄ef, et̄k̄wa, st̄v̄o:, vek, v̄ek, t̄v̄wa, katk
37	i:	mui:r, mui:r, maritus, mari:t, ka:li:ginem, si:ek, ſi:l, māri:, sysi:, ski:re, dormi:re, durmi:, wi:were, muri:, okki:dere, ſ̄esi:, neđgi:, ma:r̄ſi:, wenire, vīpi:, h̄o:si:, str̄engi:, pusi:, lanci:, l̄oji:, di:kere, di:ek, di:, skori:, subti:lem, suti:l, k <sup>w</sup> i:nk <sup>w</sup> e, ekkumhi:k, ibi:, ki:, si:k

## Appendix 4 - Segments used in the word list

38	n	dona, nino, ano, an, mənza, mari:, konesek, kuniser, konosi, punar, punjare, puna, keminar, keminar, vini:, estrepir, əstrepa, əmpena, onri, maŋo, maŋno, pekeŋo
39	qa	dqamnə, floare, sqare, ploaje, kunqafte, tqartfe, cqase
40	h	hominem, homo:, pəhō, u:he:, kinoh, hō:si:, trahere, ekkumhi:k
41	ēj	omēj, omēj, nenēj, kalizēj, kēj, nēj
42	ō	ō, nō, kōspye, lō, nō
43	ā	āfā, vā, ā, lāg, māze, pāse, etādκ, lāse, fāte, flābe, ēsādje, āpl, pāzā
44	ī	īfēfi, īfēti, ligwē, əftrīzir, əftrīzir, līpar, īsendžiar, īsēdjar, siku
45	ē	īfēfi, īfēti, mēzak, mēzar, ēdak, ēdar, lēsa, lēsar, kētar, tētū, tētū, grēdži, grēdi, ēfu, kwēdu, nēw
46	tf	īfēfi, sōtfō, uttfello, uttfjel, naritfe, tfəatfə, tfelo, tfi:l, tfer, uttfidere, uttfide, kattfare, tfe sit, catfar, tfimine, tfamina, ma:rtfi:, dʒatfe:re, zətfəa, tɔrtfere, tqartfe, tfe:r, tfjade, tfira, efar, lantfare, lantfar, arrontfare, kuftire, ziftē, tfāte, gjatfjare, glatfa:, brutfare, intfe ndjare, intfindze, muftō, anftō, pitftino, pitful, estrefō, suftiw, ftinjkwe, ftinjk, ftintf, tf e, tfemut
47	i	īfēti, īfpozē, īfpozu, pejfi, avi, īftrelē, vint, nomi, bißer, minka, kuniser, timer, tri mer, naviyak, neviyar, iftar, livar, sigurak, siyurar, sivar, epirtar, strindže, iffrigar, iffriyar, impindže, kinta, žilar, ingetsa, intfindze, grēdi, gravi, pizađu, pikenu, brevi, ingust, īftrejtū, strimt, verdi, ki, kind
48	ā	efā, ā, tfāte, gāā, gāā, kā
49	p	sponsa, epuz, esposa, spōza, ispoza, īfpozē, əspōzə, sponsus, epu, esposo, spōzo, ispo zu, īfpozu, əspōs, spō:s, piskem, peθ, pejfe, pejfi, pejfi, pef, pēs, pejte, pwasō, pēhō, passerem, paxaro, passero, paseru, pasere, apə, pluwia, plqi, pjoddža, pluzə, plu:κ, p loje, ploaje, konspuere, kōspye, kuspiκ, kuspir, eskupir, əskupi, skujpa, sputere, esp utar, sputare, spuda:, sapere, pe:nsa:re, pāse, pensar, pensare, pēsak, pēsar, pēnsa, p ēse, peŋsa:, pēsa, pugnare, punar, punjare, puna, kaptia:re, esprimere, epēēdκ, ek spremir, spremere, īfprēmek, īfprēmer, əspremā, esprimi, appektora:re, apretar, epī rtar, limpida:re, limpjar, līpar, pulsa:re, puse, puxar, pulsare, puŋar, pu:si:, pulsa:, pu lsa, impingere, impindžere, əmpena, impindže, apta:re, komputa:re, ekspō:nere, spor re, spune, paŋkus, pø, poko, pōko, powku, pōk, pō, pō:k, amplum, āpl, ampjo, amplə, pe:sant, pāzā, pesađu, pesante, pezadu, pizađu, pēzat, pezant, pittitus, pēti, pētit, pi ti, pittinus, pekeŋo, pitftino, pekenu, pikenu, putsin, pitulus, pikkolo, pitful, suptil, patru
50	z	epuz, spōza, ispoza, īfpozē, əspōzə, spōzo, ispozu, īfpozu, wazo, κaze, κazak, κezar, rəza, zvolare, zvola:, zbura, zezik, zezek, zezet, zətfəa, traze, trezer, kuzet, kuzi, kō:z, kuzi, dizef, ziftē, bruza:, pāzā, pezadu, pizađu, pēzat, pezant
51	ð	mariđu, mēriđu, maðre, morðer, murðer, neðar, toðu, pesađu, pizađu, miuðu, deŋa đu, deŋađu

## Appendix 4 - Segments used in the word list

52	k	sokius, piskem, awikellum, fru:ktus, frukt, akkwa, lakum, lak, ʎak, ka:li:ginem, ka lina, kaliḏḡine, kalizēj, kēlizēj, kajkia, kajlum, fokum, fwoko, fɔk, fu:k, fok, komed ere, komer, kome, kumer, manduka:re, mandukar, minka, morsika:re, moskar, mor sikare, murseka, konspuere, kōspyē, kuspiɤ, kufpir, eskupir, əskupi, skujpa, ski:re, kogno:skere, kōnetɤ, konoθer, konoffere, kōnesɤ, kupiser, kunɛʃə, kinɔh, koposi, kunḡafte, ko:gita:re, kɥide, kwidar, koḏitare, kuzitaɤ, kuzitar, kujda, kuḏgeta, kɤē dɤ, neka:re, neka, okki:dere, ɔksiɤ, uksi, kaptiare, kaθar, kattʃare, kasax, kəsar, kəs a, raskar, ɤafkaɤ, ɤɤfkar, rəska, kosaɭ, kusar, kaminar, kamminare, kēmipax, kēm ipar, kəmina, ekstendere, ekstender, ekstinde, jake:re, kadere, kaer, kadere, kēir, k awrə, kəḏə, eksprimere, ekspremir, skreme, appektora:re, frika:re, freka, frikta:re, ekstergere, eksu:ka:re, uska, jakta:re, lankea:re, ɛrunka:re, arankar, aruŋka, ko:nsu ere, kudɤ, koser, kuʃire, kuzer, kuzi, kō:z, kuzi, komputa:re, kōte, kontar, kontare, kōtar, kumta, kōte, konta:, di:kere, ekspo:nere, kanta:re, kantar, kantare, kētar, kən ta, kinta, joka:re, ḏokare, zuka, flu:ktua:re, flyktɥe, fluktua, ko:lare, kule, kolar, kolare, koax, kuar, kuɭa, kɔle, ekskurrere, eskurir, skorrere, iʃkɔɤɤ, iʃkurer, əsko rə, skori:, skurḏe, kurrere, kuɤiɤ, korer, korriere, kɔɤɤ, kuɤer, korə, kori, kurḏe, g lakia:re, inglakia:re, kremare, kɤame, kemar, kremare, kējmare, kejmaɤe, krəma, i nkendere, okōē, alkuno, paɥkus, poko, pɔko, powku, pɔk, po:k, lunk, ʎark, lark, pek epo, pekenu, pikenu, pikkolo, kurtus, kuɤ, korto, korto, kuɤtu, kurtu, kurt, ku:ɤ, k urt, striktus, de:lika:tus, delikato, dəlikat, katɤ, kwatro, kwattro, kwatru, kwatrə, kwat, kwatri, sēk, θinko, ʃiŋkwe, siku, siŋk, ʃiŋk, ekkumhi:k, aki, kwi, ɤki, illa:k, k i, ki:, kwi, kjen, kēj, kēj, kwa, ke, ki, kɛ, kwɛ:, kă, kwando, kwēdu, kwan, kwand, k want, kind, kɔm, komo, kome, komu, kōmē, kum, nek, si:k
53	ts	sots, tsarə, altsare, tsine, ingetsa, putsin, subtsire
54	a:	ma:trem, ma:dre, na:sus, na:so, na:s, na:ris, la:t, ma:r, sa:lem, sa:l, ka:li:ginem, tene:b ra:s, fu:ma:ta, fuma:ta, manduka:re, maŋja:, morsika:re, cuca:, spuda:, ko:gita:re, pe: nsare, peŋsa:, trima:, neka:re, tu:tari, macta:re, maʃa:, pugna:re, kaptiare, caʃa:, r adere, rada:, rasa:, nata:re, nada:, navigare, naviga:, wola:re, zvola:, ma:rʃi:, ambit a:re, sedenta:re, senta:, stare, sta:, levare, leva:, altia:re, altʃa:, torna:re, torna:, gyra: re, ḏira:, appektora:re, frika:re, frikta:re, lawa:re, lava:, eksu:ka:re, suja:, limpida:re, tira:re, tira:, pulsa:re, pulsa:, jakta:re, lankea:re, lanʃa:, ɛrunka:re, liga:re, lea:, apta: re, komputa:re, konta:, ɛnumera:re, kanta:re, canta:, joka:re, ḏuja:, flu:ktua:re, flui ta:re, ko:lare, gela:re, glakia:re, glaʃa:, inglakia:re, bruza:, kremare, flamma:re, fla gra:re, ustula:re, la:tum, de:lika:tus, illa:k
55	ēj	mēj, kēlizēj, kēj, nēj
56	r	mer, fry, savø:r, mɔri, ma:rʃir, ʃɛ:r, sərar, sɛre, iʃkurer
57	ɒ	mɒri
58	θ	peθ, nariθ, θjelo, konoθer, kaθar, jaθer, alθar, torθer, θerar, lanθar, deθir, enθender, θinko
59	ej	pejʃi, zejtar, kejmaɤe, istrejtu, trej
60	ej	pejʃi, kējmare, iʃtrejtu
61	ō	pwasō, pēhō, nō, tōbe, tōbaɤ, tōbar, kōte, kōtar, kōte, pō, ōt, lōgu, lō, ō
62	ɛ:	u:hɛ:, ɛ:w, tɛ:ɤ, tɛ:nebre, tɛ:nebre, ʃɛ:r, kwɛ:
63	ɥ	fɤɥi, plɥi, kɥide, tɥe, esɥije, flyktɥe
64	ø:	flø:ɤ, stø:l, fø:, bø:ɤ, savø:r, kō:z, stɤø:, dø:, trø:
65	ɭ	sɔɭ, aɭsa, aɭsar, kuɭa, ʃɭama, aɭgū, aɭ, deɭɤaḏu

## Appendix 4 - Segments used in the word list

66	c	soliculus, cuca:, macta:re, caŋa:, lanci:, cɔase, canta:, fluctua, molc, tanc
67	ɛj	sɔləj, fɛɛje
68	ø	løn, fø, pø, dø
69	ɛa	stɛa, ʈɛaʈə, bɛa, zəʈɛa, ʃedɛa, kədəa
70	k <sup>w</sup>	ak <sup>w</sup> a, tork <sup>w</sup> e:re, k <sup>w</sup> attwor, k <sup>w</sup> i:nk <sup>w</sup> e, k <sup>w</sup> is, k <sup>w</sup> em, k <sup>w</sup> id, k <sup>w</sup> ando:, k <sup>w</sup> o:modo
71	ɣ	aɣwa, aɣwə, laɣu, foɣu, musəɣa, naviɣaɤ, nəviɣaɤ, siɣuraɤ, iʃfriɣaɤ, ɛʃuɣaɤ, ʎiɣa, zuɣaɤ, laɣo, dəɣaɔo, dəɣaɔu
72	aj	aɣwə, tene:braj, kajkia, kajlum, nwaje, traj, majjorem, duaj
73	g	age, lago, lɛngɛ, pugna:re, naviga:re, naviga:, mergere, gyra:re, stringere, stringe, st rɛngi:, fregare, impingere, lega, xugar, glaʈa:, ingetsa, flagɤaɤ, alguno, magnum, g randem, gran, gɤã, grant, longo, lung, largum, larg, grav, grɛvi, grew, ingust
74	ẽ	vētu, vẽ, pēsaa, pēsaa, kɛēdɤ, istēdɤ, iʃtēder, sētar, ɛʃugar, ɛʃuɣaɤ, ʎsēdjaɤ, sēk, nẽ
75	ŋ	aŋ, nŋ, lɛŋgwa, maŋja:, peŋsa:, aɤuŋka, ʎŋ, ingust, uŋ, ʈiŋkwe, siŋk, ʈiŋk
76	g <sup>w</sup>	ling <sup>w</sup> a
77	ẽu	lẽu
78	a	bwaɤ, ɤaze, tɤwa
79	β	biβer, səβɛ, laβaɤ
80	ʃ	maŋja:
81	ẽ	pēse, epɛēdɤ, etɛēdɤ, ɛsādje, kɔmẽ
82	ʈʃ	maʈʃa:, ʈʃine
83	ɿ	kosaɿ
84	ɔ:	hɔ:si:
85	ũ	mũjtu, awgũ, aɿgũ, ũ
86	ĩ	mũjtu
87	œ	okœ, œ
88	aɯ	paɯkus
89	ĩ	nẽĩ

## Appendix 5 - Word Lists by Language

### Latin

Ancestral Class	IPA	Sounds
I	-ego:	ay-g-O
We	no:-s	n-O-s
YouPlural	wo:-s	w-O-s
YouSingular	tu:	t-U
Woman	fe:-mi-n-a	f-ai-m-e-n-ah
Woman-Mulier	mulierem	m-u-l-e-ay-r-ay-m
Woman-Domina	domina	d-oh-m-e-n-ah
ManHumanBeing	homi-nem	h-oh-m-e-n-ay-m
ManHumanBeing-Homo	-homo:	h-oh-m-O
Child	infantem	e-n-f-ah-n-t-ay-m
Wife	-sponsa	s-p-oh-n-s-ah
Wife-Mulier	mulier-	m-u-l-e-ay-r
Husband	mari:tus	m-ah-r-E-t-u-s
Husband-Sponsus	-sponsus	s-p-oh-n-s-u-s
Husband-Socius	sokius	s-oh-k-e-u-s
Mother	ma:trem	m-A-t-r-ay-m
Fish-Piskem	piskem	p-e-s-k-ay-m
Bird-Avem	awem	ah-w-ay-m
Bird-Avicellum	-awi-k-ellum	ah-w-e-k-ay-l-l-u-m
Bird-Passerem	passerem	p-ah-s-s-ay-r-ay-m
Fruit	fru:ktus	f-r-U-k-t-u-s
Flower	flo:rem	f-l-O-r-ay-m
Nose	na:sus	n-A-s-u-s
Sun	so:lem	s-O-l-ay-m
Sun-Soliculus	soliculus	s-oh-l-e-tya-u-l-u-s
Moon	lu:na	l-U-n-ah
Star	-st-e:lla	s-t-ai-l-l-ah
Water	a-k <sup>w</sup> -a	ah-kw-ah
Rain	plu-wia	p-l-u-w-e-ah
Lake	lakum	l-ah-k-u-m
Sea	mare	m-ah-r-ay
Salt	'sa:lem	s-A-l-ay-m
Earth	t-erra	t-ay-r-r-ah
Fog	ka:li:ginem	k-A-l-E-g-e-n-ay-m
Fog-Nebula	n-e-bula	n-ay-b-u-l-ah
Fog-Tenebrae	tene:braj	t-ay-n-ai-b-r-aj_diphthong
Fog-Tenebras	t-en-e:bras	t-ay-n-ai-b-r-A-s
Fog-Fumata	fu:ma:ta	f-U-m-A-t-ah
Fog-Caecia	kajkia	k-aj_diphthong-k-e-ah



## Appendix 5 - Word Lists by Language

Sky	'k-ajlum	k-aj_diphthong-l-u-m
Wind	w-entum	w-ay-n-t-u-m
Fire-Focus	f-okum	f-oh-k-u-m
Year	annum	ah-n-n-u-m
Name-Nomen	no:men	n-O-m-ay-n
Name-Nominem	no:min-em	n-O-m-e-n-ay-m
Tongue	ling <sup>w</sup> -a	l-e-n-gw-ah
ToDrink	'bib-ere	b-e-b-ay-r-ay
ToEat	komedere	k-oh-m-ay-d-ay-r-ay
ToEat-Manducare	manduka:re	m-ah-n-d-u-k-A-r-ay
ToBite	m-orde:re	m-oh-r-d-ai-r-ay
ToBite-Morsicare	morsika:re	m-oh-r-s-e-k-A-r-ay
ToSuck	su:gere	s-U-g-ay-r-ay
ToSpit	konspuere	k-oh-n-s-p-u-ay-r-ay
ToSpit-Sputare	-sputere	s-p-u-t-ay-r-ay
ToKnow	ski:re	s-k-E-r-ay
ToKnow-Sapere	sap-ere	s-ah-p-ay-r-ay
ToKnow-Cognoscere	kogno:skere	k-oh-g-n-O-s-k-ay-r-ay
ToThink	k-o:gita:re	k-O-g-e-t-A-r-ay
ToThink-Pensare	pe:nsa:re	p-ai-n-s-A-r-ay
ToFear	time:re	t-e-m-ai-r-ay
ToFear-Tremere	trem-ere	t-r-ay-m-ay-r-ay
ToSleep	d-ormi:re	d-oh-r-m-E-r-ay
ToLive	wi:were	w-E-w-ay-r-ay
ToKill	n-eka:re	n-ay-k-A-r-ay
ToKill-Tutari	tu:-ta:ri	t-U-t-A-r-e
ToKill-Mactare	macta:re	m-ah-tya-t-A-r-ay
ToKill-Occidere	okki:dere	oh-k-k-E-d-ay-r-ay
ToFight	pugna:re	p-u-j-n-A-r-ay
ToFight-Battuere	battuere	b-ah-t-t-u-ay-r-ay
ToHunt-Captiare	kaptia:re	k-ah-p-t-e-A-r-ay
ToScratch	ra:dere	r-A-d-ay-r-ay
ToSwim	n-ata:re	n-ah-t-A-r-ay
ToSwim-Navigare	naviga:re	n-ah-v-e-j-A-r-ay
ToFly	wola:re	w-oh-l-A-r-ay
ToWalk-Mergere	mergere	m-ay-r-j-ay-r-ay
ToWalk-Ambitare	ambita:re	ah-m-b-e-t-A-r-ay
ToCome	weni:re	w-ay-n-E-r-ay
ToLieAsInABed	ekstendere	ay-k-s-t-ay-n-d-ay-r-ay
ToLieAsInABed-lacere	ja-ke:re	jg-ah-k-ai-r-ay
ToSit	s-edere	s-ay-d-ai-r-ay
ToSit-Sedentare	sedenta:re	s-ay-d-ay-n-t-A-r-ay

## Appendix 5 - Word Lists by Language

ToStand	-sta:re	s-t-A-r-ay
ToStand-Levare	leva:re	l-ay-v-A-r-ay
ToStand-Altiare	-altia:re	ah-l-t-e-A-r-ay
ToTurnIntransitive	torna:re	t-oh-r-n-A-r-ay
ToTurnIntransitive-Gyrare	gyra:re	j-eeh-r-A-r-ay
ToTurnIntransitive-Torquere	tork <sup>w</sup> e:re	t-oh-r-kw-ai-r-ay
ToFall	k-adere	k-ah-d-ay-r-ay
ToHold	ten-e:re	t-ay-n-ai-r-ay
ToSqueeze	eksprim-ere	ay-k-s-p-r-e-m-ay-r-ay
ToSqueeze-Serrere	serrere	s-ay-r-r-ay-r-ay
ToSqueeze-Serare	se-rare	s-ay-r-ah-r-ay
ToSqueeze-Appetorare	appektora:re	ah-p-p-ay-k-t-oh-r-A-r-ay
ToSqueeze-Stringere	-stringere	s-t-r-e-n-j-ay-r-ay
ToRub	frika:re	f-r-e-k-A-r-ay
ToRub-Frictare	frikta:re	f-r-e-k-t-A-r-ay
ToWash	lawa:re	l-ah-w-A-r-ay
ToWipe	tergere	t-ay-r-g-ay-r-ay
ToWipe-Extergere	ekstergere	ay-k-s-t-ay-r-g-ay-r-ay
ToWipe-Exsucare	eks-u:k-a:re	ay-k-s-U-k-A-r-ay
ToWipe-Limpidare	limpida:re	l-e-m-p-e-d-A-r-ay
ToPull	tira:re	t-e-r-A-r-ay
ToPull-Pulsare	pulsa:re	p-u-l-s-A-r-ay
ToPull-Trahere	trahere	t-r-ah-h-ay-r-ay
ToPush	impingere	e-m-p-e-n-j-ay-r-ay
ToThrow	jakta:re	jg-ah-k-t-A-r-ay
ToThrow-Lanceare	lankea:re	l-ah-n-k-ay-A-r-ay
ToThrow-Eruncare	e:runka:re	ai-r-u-n-k-A-r-ay
ToTie	liga:re	l-e-g-A-r-ay
ToTie-Aptare	apta:re	ah-p-t-A-r-ay
ToSew	ko:n-suere	k-O-n-s-u-ay-r-ay
ToCount	komputa:re	k-oh-m-p-u-t-A-r-ay
ToCount-Enumerare	e:numera:re	ai-n-u-m-ay-r-A-r-ay
ToSay	di:kere	d-E-k-ay-r-ay
ToSay-Exponere	eksपो:nera	ay-k-s-p-O-n-ay-r-ay
ToSing-AncestralClass	kanta:re	k-ah-n-t-A-r-ay
ToPlay-Ludere	lu:dere	l-U-d-ay-r-ay
ToPlay-Jiocare	jo-ka:re	jg-oh-k-A-r-ay
ToFloat	flu:ktua:re	f-l-U-k-t-u-A-r-ay
ToFloat-Flutare	fluita:re	f-l-u-e-t-A-r-ay
ToFlow	fluere	f-l-u-ay-r-ay
ToFlow-Colare	ko:la:re	k-O-l-A-r-ay
ToFlow-Excurrere	ekskurrere	ay-k-s-k-u-r-r-ay-r-ay

## Appendix 5 - Word Lists by Language

ToFlow-Currere	kurrere	k-u-r-r-ay-r-ay
ToFreeze	gela:re	g-ay-l-A-r-ay
ToFreeze-Glaciare	gla-kia:re	g-l-ah-k-e-A-r-ay
ToFreeze-Inglaciare	inglakia:re	e-n-g-l-ah-k-e-A-r-ay
ToBurn-Cremare	krema:re	k-r-ay-m-A-r-ay
ToBurn-Flammare	flamma:re	f-l-ah-m-m-A-r-ay
ToBurn-Ardere	arde:re	ah-r-d-ai-r-ay
ToBurn-Flagrare	flagra:re	f-l-ah-g-r-A-r-ay
ToBurn-Incendere	inkend-ere	e-n-k-ay-n-d-ay-r-ay
ToBurn-AncestralClass8	ustula:re	u-s-t-u-l-A-r-ay
All	omne:s	oh-m-n-ai-s
All-Totus	to:-tus	t-O-t-u-s
Many	multus	m-u-l-t-u-s
Many-Tantus	tantus	t-ah-n-t-u-s
Few	paucus	p-au_diphthong-k-u-s
Other	alter-	ah-l-t-ay-r
Other-Alius	alius	ah-l-e-u-s
Big	magnum	m-ah-j-n-u-m
Big-Grandem	grandem	j-r-ah-n-d-ay-m
Big-Majjorem	majjorem	m-aj_diphthong-jg-oh-r-ay-m
Long-Longum	'lo-ngum	l-oh-n-g-u-m
Long-Largum	largum	l-ah-r-j-u-m
Wide	'la:tum	l-A-t-u-m
Wide-Amplum	amplum	ah-m-p-l-u-m
Heavy	grawis	g-r-ah-w-e-s
Heavy-Lurdus	lurdus	l-u-r-d-u-s
Heavy-Pesant	pe:sant-	p-ai-s-ah-n-t
Small	pittitus	p-e-t-t-e-t-u-s
Small-Pittinus	'pittinus	p-e-t-t-e-n-u-s
Small-Pitulus	pi-tulus	p-e-t-u-l-u-s
Short	kurtus	k-u-r-t-u-s
Short-Brevis	brewis	b-r-ay-w-e-s
Narrow	angustus	ah-n-g-u-s-t-u-s
Narrow-Strictus	-str-i-ktus	s-t-r-e-k-t-u-s
Thin	minu:-tus	m-e-n-U-t-u-s
Thin-Delicatus	de:lika:tus	d-ai-l-e-k-A-t-u-s
Thin-Subtilis	subti:lem	s-u-b-t-E-l-ay-m
Green	'wiridem	w-e-r-e-d-ay-m
One	'u:num	U-n-u-m
Two-Duos	duo:s	d-u-O-s
Two-Duae	du-aj	d-u-aj_diphthong
Two-Duas	duas	d-u-ah-s

## Appendix 5 - Word Lists by Language

Three	tr-e:s	t-r-ai-s
Four	k <sup>w</sup> -attwor-	kw-ah-t-t-w-oh-r
Five	'k <sup>w</sup> i:nk <sup>w</sup> -e	kw-E-n-kw-ay
Here	-ekkumhi:k	ay-k-k-u-m-h-E-k
There	illa:k	e-l-l-A-k
There-Ibi	ibi:	e-b-E
Who-Qui	k <sup>w</sup> -is	kw-e-s
Who-Quem	k <sup>w</sup> -em-	kw-ay-m
What	'k <sup>w</sup> -id	kw-e-d
When-Quando	k <sup>w</sup> -ando:	kw-ah-n-d-O
How-Quomodo	'k <sup>w</sup> o:modo	kw-O-m-oh-d-oh
Not	no:n	n-O-n
Not-Nec	nek	n-ay-k
And-Et	et	ay-t
And-Si	si:k	s-E-k

## French

Ancestral Class	IPA	Sounds
I	ʒə--	gzah-aah
We	nu--	n-u
YouPlural	vu--	v-u
YouSingular	ty	t-eeh
Woman	fa-m-----	f-ah-m
Woman-Domina	dam---	d-ah-m
ManHumanBeing	-ɔm-----	euh-m
ManHumanBeing-Homo	-õ--	oon
Child	ã-fã----	NasalA-f-NasalA
Wife	e-pu-z-	ay-p-u-zz
Husband	maʁi---	m-ah-rr-e
Husband-Sponsus	e-pu----	ay-p-u
Mother	me-ʁ--	m-ay-rr
Fish-Pescion	pwasõ	p-w-ah-s-on
Bird-Avicellum	wa---z-o----	w-ah-zz-oh
Fruit	fʁɥi----	f-rr-eu-e
Flower	flœʁ--	f-l-OpenMidNearFrontRounded-rr
Nose	ne---	n-ay
Sun-Soliculus	sɔləj----	s-euh-l-eh_diphthong
Moon	lyn-	l-eeh-n
Star	e-twa-l-	ay-t-w-ah-l
Water	o----	oh
Rain	plɥ-i-	p-l-eu-e

## Appendix 5 - Word Lists by Language

Lake	lak--	l-ah-k
Sea	mεκ-	m-eh-rr
Salt	sɛl--	s-eh-l
Earth	t-e-κ-	t-ay-rr
Fog-Nebula	njo---ly	n-jg-euh-l-eeh
Fog-Tenebras	t-en-εβκ-	t-ay-n-eh-b-rr
Fog-Fumata	fyme--	f-eeh-m-ay
Sky	sjɛl--	s-jg-eh-l
Wind	v-ǎ----	v-NasalA
Fire-Focus	f-ø---	f-uu
Year	ǎ----	NasalA
Name-Nomen	nǔ---	n-oon
Tongue	lǎ-g--	l-NasalA-g
ToDrink	b--wακ-	b-w-a-rr
ToEat-Manducare	mǎ-3--e--	m-NasalA-gzah-ay
ToBite	m-oκd-κ-	m-oh-rr-d-rr
ToSuck	syse--	s-eeh-s-ay
ToSpit	kǔ-spye-	k-oon-s-p-eeh-ay
ToKnow-Sapere	savwακ-	s-ah-v-w-ah-rr
ToKnow-Cognoscere	κo-nε-tκ-	k-euh-n-eh-t-rr
ToThink	ky--ide--	k-eu-e-d-ay
ToThink-Pensare	pǎ-se--	p-NasalA-s-ay
ToFear-Tremere	κβē-d-κ-	k-rr-ehn-d-rr
ToSleep	d-ɔβmiκ-	d-euh-rr-m-e-rr
ToLive	viv-κ-	v-e-v-rr
ToDie	muβiκ-	m-u-rr-e-rr
ToKill	nwaje--	n-w-aj_diphthong-ay
ToKill-Tutari	t-ɥ-e--	t-eu-ay
ToKill-Mactare	ma-te--	m-ah-t-ay
ToKill-Occidere	ɔksi--κ-	euh-k-s-e-rr
ToFight-Battuere	bat--κ-	b-ah-t-rr
ToHunt-Captiare	ʃa-s-e--	shh-ah-s-ay
ToScratch-Rasare	βaze--	rr-a-zz-ay
ToSwim-Navigare	na--3e--	n-ah-gzah-ay
ToFly	vole--	v-oh-l-ay
ToWalk	ʃəmine--	shh-aah-m-e-n-ay
ToWalk-Marcher	maκʃe	m-ah-rr-shh-ay
ToCome	vəniκ-	v-aah-n-e-rr
ToLieAsInABed	e-tǎ-d-κ-	ay-t-NasalA-d-rr
ToLieAsInABed-lacere	3e-zik-	gzah-ay-zz-e-rr
ToSit	swa--κ-	s-w-ah-rr
ToStand	ε-t-κ-	eh-t-rr

## Appendix 5 - Word Lists by Language

ToStand-Levare	læve--	l-aah-v-ay
ToStand-Altiare	-o-s-e--	oh-s-ay
ToTurnIntransitive	tũrne--	t-u-rr-n-ay
ToTurnIntransitive-Gyrare	zĩve--	gzah-e-rr-ay
ToTurnIntransitive	viĩe--	v-e-rr-ay
-AncestralClass3		
ToTurnIntransitive-Torquere	tũrd-ʁ-	t-euh-rr-d-rr
ToFall	ʃwa--ʁ-	shh-w-ah-rr
ToFall-Tumbare	tõ-be-	t-on-b-ay
ToHold	tən-iĩ-	t-aah-n-e-rr
ToSqueeze	e--pũẽ-d-ʁ-	ay-p-rr-ehnn-d-rr
ToSqueeze-Serare	se-ve--	s-ay-rr-ay
ToSqueeze-Stringere	e-tũẽ-d-ʁ-	ay-t-rr-ehnn-d-rr
ToRub	fũeje--	f-rr-eh_diphthong-ay
ToRub-Frictare	fũote--	f-rr-oh-t-ay
ToWash	lave--	l-ah-v-ay
ToWipe-Exsucare	e-sũi-je--	ay-s-eu-e-jg-ay
ToPull	tĩve--	t-e-rr-ay
ToPull-Pulsare	pu-se--	p-u-s-ay
ToPull-Trahere	tũ--ẽʁ-	t-rr-eh-rr
ToThrow	zə-te	gzah-aah-t-ay
ToThrow-Lanceare	lã-s-e-	l-NasalA-s-ay
ToTie	li-e--	l-e-ay
ToSew	ku-d---ʁ-	k-u-d-rr
ToCount	kõ---te--	k-on-t-ay
ToCount-Enumerare	enumeve--	ay-n-u-m-ay-rr-ay
ToSay	di--ʁ	d-e-rr
ToSing-AncestralClass	ʃã-te--	shh-NasalA-t-ay
ToPlay-Jiocare	ʒ-w-e--	gzah-w-ay
ToFloat	flyktũe--	f-l-eeh-k-t-eu-ay
ToFlow	flye--	f-l-eeh-ay
ToFlow-Colare	kule--	k-u-l-ay
ToFlow-Currere	ku-ũĩʁ-	k-u-rr-e-rr
ToFreeze	zəle--	gzah-aah-l-ay
ToFreeze-Glaciare	gla-s-e--	g-l-ah-s-ay
ToBurn-Brojan	bũyle--	b-rr-eeh-l-ay
ToBurn-Cremare	kũame--	k-rr-ah-m-ay
ToBurn-Flammare	flã-be--	f-l-NasalA-b-ay
ToBurn-Ardere	aũd-ʁ-	ah-rr-d-rr
ToBurn-Flagrare	flagve--	f-l-ah-g-rr-ay
ToBurn-Incendere	ẽ-sã-dje--	ehnn-s-NasalA-d-jg-ay
All-Totus	tũ----	t-u

## Appendix 5 - Word Lists by Language

Many	mu---	m-u
Some	o-kœ-	oh-k-uuh
Few	pø---	p-uu
Other	o-t-ʁ-	oh-t-rr
Big-Grandem	gʁã---	g-rr-an
Long-Longum	lõ-----	l-oon
Long-Largum	laʁʒ--	l-ah-rr-gzah
Wide	le---	l-ay
Wide-Amplum	ã-pl--	NasalA-p-l
Heavy	gʁav--	g-rr-ah-v
Heavy-Lurdus	luʁ---	l-u-rr
Heavy-Pesant	pəʒã---	p-aah-zz-NasalA
Small	pə-ti---	p-aah-t-e
Short	kuʁ---	k-u-rr
Short-Brevis	bʁɛf--	b-rr-eh-f
Narrow-Strictus	e-tʁwa-----	ay-t-rr-w-ah
Thin	məny----	m-aah-n-eeh
Thin-Delicatus	du:--ʒe:---	d-U-gzah-ai
Green	veʁ----	v-ay-rr
One	œ---	uuh
Two-Duos	d-ø-	d-uu
Three	tʁwa-	t-rr-w-a
Four	k-a-t--ʁ-	k-ah-t-rr
Five	sɛ-k--	s-ehn-k
Here	i--s---i-	e-s-e
There	--la-	l-ah
Who-Qui	k-i-	k-e
What	kwa-	k-w-ah
When-Quando	k-ã---	k-an
How-Quomodo	kɔm---	k-euh-m
Not	nɔ-	n-oon
Not-Nec	ni-	n-e
And-Et	e-	ay

## Spanish

Ancestral Class	IPA	Sounds
I	j--o	VdPalatalFricativeoh
We	no-s	n-oh-s
YouPlural	bo-s	b-oh-s
YouSingular	tu	t-u
YouSingular-VostramMercedem	-usted	u-s-t-ay-d

## Appendix 5 - Word Lists by Language

Woman	-e-m-br-a	ay-m-b-er-ah
Woman-Mulier	mux-er--	m-u-xha-ay-er
Woman-Domina	do--pa	d-oh-VdPalatalNasal-ah
ManHumanBeing	om-bre-	oh-m-b-er-ay
Child	infante-	e-n-f-ah-n-t-ay
Child-Ninnus	nipo	n-e-VdPalatalNasal-oh
Wife	espo-sa	ay-s-p-oh-s-ah
Wife-Mulier	mux-er-	m-u-xha-ay-er
Husband	mariðo-	m-ah-er-e-dd-oh
Husband-Sponsus	espo-so-	ay-s-p-oh-s-oh
Mother	maðre-	m-ah-dd-er-ay
Fish-Piskem	peθ---	p-ay-th
Bird-Avem	abe-	ah-b-ay
Bird-Passerem	pa-xaro-	p-ah-xha-ah-er-oh
Fruit	fru--to-	f-er-u-t-oh
Flower	flor--	f-l-oh-er
Nose	naso-	n-ah-s-oh
Nose-Nares	nariθ-	n-ah-er-e-th
Sun	sol--	s-oh-l
Moon	luna	l-u-n-ah
Star	estre-ja	ay-s-t-er-ay-VdPalatalFricative-ah
Water	'a-ywa	ah-juh-w-ah
Rain	j-u-bja	VdPalatalFricative-u-b-jg-ah
Lake	lago-	l-ah-j-oh
Sea	mar-	m-ah-er
Salt	sal--	s-ah-l
Earth	'tje-ra	t-jg-ay-r-ah
Fog	kali--na-	k-ah-l-e-n-ah
Fog-Nebula	nje-b-la	n-jg-ay-b-l-ah
Fog-Tenebras	t-injeblas	t-e-n-jg-ay-b-l-ah-s
Fog-Fumata	fumata	f-u-m-ah-t-ah
Sky	'θjelo	th-jg-ay-l-oh
Wind	'bjento-	b-jg-ay-n-t-oh
Fire-Focus	fwego-	f-w-ay-g-oh
Year	a-po-	ah-VdPalatalNasal-oh
Name-Nominem	nom-bre-	n-oh-m-b-er-ay
Tongue	'lenggwa	l-ay-nya-g-w-ah
ToDrink	beb-er-	b-ay-b-ay-er
ToEat	kome--r-	k-oh-m-ay-er
ToEat-Manducare	mandukar-	m-ah-n-d-u-k-ah-er
ToBite	m-orðer-	m-oh-er-dd-ay-er
ToBite-Morsicare	mo-s-kar-	m-oh-s-k-ah-er



## Appendix 5 - Word Lists by Language

ToSpit-Exconspuere	esku-pir	ay-s-k-u-p-e-er
ToSpit-Sputare	esputar	ay-s-p-u-t-ah-er
ToKnow-Sapere	sab-er-	s-ah-b-ay-er
ToKnow-Cognoscere	ko-noθer-	k-oh-n-oh-th-ay-er
ToThink	kw--idar-	k-w-e-d-ah-er
ToThink-Pensare	pensar-	p-ay-n-s-ah-er
ToFear	temer-	t-ay-m-ay-er
ToFear-Tremere	trem-er-	t-er-ay-m-ay-er
ToSleep	d-ormir-	d-oh-er-m-e-er
ToLive	bibir-	b-e-b-e-er
ToDie	morir-	m-oh-er-e-er
ToKill-Adnecare	a-negar-	ah-n-ay-g-ah-er
ToKill-Mactare	ma-tar-	m-ah-t-ah-er
ToFight	pu-ñar-	p-u-VdPalatalNasal-ah-er
ToFight-Battuere	ba-t-ir-	b-ah-t-e-er
ToHunt-Captiare	ka-θ-ar-	k-ah-th-ah-er
ToScratch	ra-er-	r-ah-ay-er
ToScratch-Rasare	rasar-	r-ah-s-ah-er
ToScratch-Rasicare	raskar	r-ah-s-k-ah-er
ToSwim	n-adar-	n-ah-d-ah-er
ToSwim-Navigare	nabegar-	n-ah-b-ay-g-ah-er
ToFly	bolar-	b-oh-l-ah-er
ToWalk	kaminar-	k-ah-m-e-n-ah-er
ToWalk-Ambitare	and--ar-	ah-n-d-ah-er
ToCome	benir-	b-ay-n-e-er
ToLieAsInABed	ekstender-	ay-k-s-t-ay-n-d-ay-er
ToLieAsInABed-lacere	ja-θer-	VdPalatalFricative-ah-th-ay-er
ToSit	s-e--r-	s-ay-er
ToSit-Sedentare	se--ntar-	s-ay-n-t-ah-er
ToStand	estar-	ay-s-t-ah-er
ToStand-Levare	jebar-	VdPalatalFricative-ay-b-ah-er
ToStand-Altiare	-alθ-ar-	ah-l-th-ah-er
ToTurnIntransitive	tornar-	t-oh-er-n-ah-er
ToTurnIntransitive-Gyrare	xirar-	xha-e-er-ah-er
ToTurnIntransitive	birar-	b-e-er-ah-er
-AncestralClass3		
ToTurnIntransitive-Torquere	torθer-	t-oh-er-th-ay-er
ToFall	k-a-er-	k-ah-ay-er
ToFall-Tumbare	tumbar	t-u-m-b-ah-er
ToHold	ten-er-	t-ay-n-ay-er
ToHold-Segurar	segurar	s-ay-g-u-er-ah-er
ToSqueeze	eksprem-ir-	ay-k-s-p-er-ay-m-e-er

## Appendix 5 - Word Lists by Language

ToSqueeze-Serrere	se-rar	s-ay-r-ah-er
ToSqueeze-Serare	θe-rar-	th-ay-r-ah-er
ToSqueeze-Appetorare	a-p--retar-	ah-p-er-ay-t-ah-er
ToSqueeze-Stringere	estrep-ir-	ay-s-t-er-ay-VdPalatalNasal-e-er
ToRub	fregar-	f-er-ay-g-ah-er
ToRub-Frictare	frotar-	f-er-oh-t-ah-er
ToRub-Frictiare	frisar	f-r-e-s-ah-er
ToWash	laβar-	l-ah-bb-ah-er
ToWipe-Extergere	e-starsir-	ay-s-t-ah-er-s-e-er
ToWipe-Exsucare	enx-ug-ar-	ay-n-xha-u-g-ah-er
ToWipe-Limpidare	limpj-ar-	l-e-m-p-jg-ah-er
ToPull	tirar-	t-e-er-ah-er
ToPull-Pulsare	pu-xar-	p-u-xha-ah-er
ToThrow	-e-tʃar	ay-ts-ah-er
ToThrow-Lanceare	lan-θ-ar	l-ah-n-th-ah-er
ToThrow-Eruncare	a-rankar	ah-r-ah-n-k-ah-er
ToTie	legar-	l-ay-g-ah-er
ToTie-Aptare	a-tar-	ah-t-ah-er
ToSew	ko--s-er-	k-oh-s-ay-er
ToCount	kon--tar-	k-oh-n-t-ah-er
ToCount-Enumerare	enumerar-	ay-n-u-m-ay-er-ah-er
ToSay	deθir	d-ay-th-e-er
ToSing-AncestralClass	kantar-	k-ah-n-t-ah-er
ToPlay-Ludere	ludir-	l-u-d-e-er
ToPlay-Jiocare	xu-gar-	xha-u-j-ah-er
ToFloat	flugtwar-	f-l-u-g-t-w-ah-er
ToFlow	fluir-	f-l-u-e-er
ToFlow-Colare	kolar-	k-oh-l-ah-er
ToFlow-Excurrere	e-skurir-	ay-s-k-u-r-e-er
ToFlow-Currere	ko-rer-	k-oh-r-ay-er
ToFreeze	-elar-	ay-l-ah-er
ToBurn-Cremare	k-emar-	k-ay-m-ah-er
ToBurn-Flammare	fla-mear	f-l-ah-m-ay-ah-er
ToBurn-Ardere	arder-	ah-er-d-ay-er
ToBurn-Flagrare	flagrar	f-l-ah-g-er-ah-er
ToBurn-Incendere	enθend-er-	ay-n-th-ay-n-d-ay-er
All-Totus	to-do-	t-oh-d-oh
Many	mu-tʃo-	m-u-ts-oh
Many-Tantus	tanto-	t-ah-n-t-oh
Some	alguno	ah-l-j-u-n-oh
Few	poko-	p-oh-k-oh
Other	o-t-ro	oh-t-er-oh

## Appendix 5 - Word Lists by Language

Big	ma-po-	m-ah-VdPalatalNasal-oh
Big-Grandem	grande-	g-er-ah-n-d-ay
Long-Longum	lo-ngo-	l-oh-n-j-oh
Long-Largum	laryo-	l-ah-er-juh-oh
Wide	lato-	l-ah-t-oh
Wide-Amplum	antf-o-	ah-n-ts-oh
Heavy	grabe-	g-er-ah-b-ay
Heavy-Lurdus	lerdo-	l-ay-er-d-oh
Heavy-Pesant	pesa-ðo	p-ay-s-ah-dd-oh
Small-Pittinus	pe-kepo-	p-ay-k-ay-VdPalatalNasal-oh
Short	korto-	k-oh-er-t-oh
Short-Brevis	brebe-	b-er-ay-b-ay
Narrow	angosto-	ah-n-g-oh-s-t-oh
Narrow-Strictus	estr-e-tfo-	ay-s-t-er-ay-ts-oh
Thin	menu-do-	m-ay-n-u-d-oh
Thin-Delicatus	del-yaðo-	d-ay-l-juh-ah-dd-oh
Thin-Subtilis	su-til--	s-u-t-e-l
Green	ber-de-	b-ay-er-d-ay
One	'uno-	u-n-oh
Two-Duos	d-os	d-oh-s
Three	tr-es	t-er-ay-s
Four	kwa-t--ro	k-w-ah-t-er-oh
Five	'θink-o	th-e-n-k-oh
Here	-a-k---i-	ah-k-e
There	a-ja-	ah-VdPalatalFricativeah
There-Adlbi	ai	ah-e
Who-Quem	kjen-	k-jg-ay-n
What	k-e-	k-ay
When-Quando	kwando	k-w-ah-n-d-oh
How-Quomodo	komo--	k-oh-m-oh
Not	no-	n-oh
Not-Nec	ni-	n-e
And-Et	i-	e

## Italian

Ancestral Class	IPA	Sounds
I	i--o	e-oh
We	no:i-	n-O-e
YouPlural	'vo:i-	v-O-e
YouSingular	tu	t-u
Woman	femmi-n-a	f-ay-m-m-e-n-ah

## Appendix 5 - Word Lists by Language

Woman-Mulier	moʎʎe---	m-oh-yuh-yuh-ay
Woman-Domina	dɔn-na	d-euh-n-n-ah
ManHumanBeing-Homo	wɔmo	w-euh-m-oh
Child	--fante-	f-ah-n-t-ay
Child-Ninnus	nino	n-e-n-oh
Wife	-spɔ-za	s-p-euh-zz-ah
Wife-Mulier	moʎʎe--	m-oh-yuh-yuh-ay
Husband	marito-	m-ah-r-e-t-oh
Husband-Sponsus	-spɔ-zo-	s-p-euh-zz-oh
Husband-Socius	sɔʃ-o-	s-euh-ts-oh
Mother	ma:dre-	m-A-d-r-ay
Fish-Piskem	peʃʃe-	p-ay-shh-shh-ay
Bird-Avicellum	--u-tʃ-ello-	u-t-ts-eh-l-l-oh
Bird-Passerem	passero-	p-ah-s-s-ay-r-oh
Fruit	fru-tto-	f-r-u-t-t-oh
Flower	'fjo:re-	f-jg-O-er-ay
Nose	na:so-	n-A-s-oh
Nose-Nares	naritʃe	n-ah-r-e-ts-ay
Sun	sole-	s-oh-l-ay
Moon	luna	l-u-n-ah
Star	-st-ella	s-t-ay-l-l-ah
Water	akkwa	ah-k-k-w-ah
Rain	pjoddʒ-a	p-jg-oh-d-VdPalatoAlveolarSibilant-ah
Lake	lago-	l-ah-g-oh
Sea	mare	m-ah-r-ay
Salt	sale-	s-ah-l-ay
Earth	't-erra	t-eh-r-r-ah
Fog	kalidʒine-	k-ah-l-e-VdPalatoAlveolarSibilant-e-n-ay
Fog-Nebula	n-ebb-ja	n-ay-b-b-jg-ah
Fog-Tenebrae	tɛ:nebre	t-Eh-n-ay-b-r-ay
Fog-Tenebras	t-ɛ:n-ebre-	t-Eh-n-ay-b-r-ay
Fog-Fumata	fuma:ta	f-u-m-A-t-ah
Sky	'ʃ-elo-	ts-eh-l-oh
Wind	'v-ento-	v-eh-n-t-oh
Fire-Focus	fwɔko-	f-w-euh-k-oh
Year	anno-	ah-n-n-oh
Name-Nomen	no:me-	n-O-m-ay
Tongue	'lingwa	l-e-n-g-w-ah
ToDrink	be---re	b-ay-er-ay
ToEat-Manducare	mandʒ--are	m-ah-n-VdPalatoAlveolarSibilant-ah-er-ay
ToBite	m-ɔrdere	m-euh-r-d-ay-r-ay
ToBite-Morsicare	morsikare	m-oh-r-s-e-k-ah-er-ay

## Appendix 5 - Word Lists by Language

To Spit-Sputare	-sputare	s-p-u-t-ah-er-ay
To Know-Sapere	sap-ere	s-ah-p-ay-r-ay
To Know-Cognoscere	ko-noffere	k-oh-n-oh-shh-shh-ay-r-ay
To Think	k-odʒitare	k-oh-VdPalatoAlveolarSibilant-e-t-ah-r-ay
To Think-Pensare	pensare	p-ay-n-s-ah-er-ay
To Fear	temere	t-ay-m-ay-r-ay
To Fear-Tremere	trem-are	t-r-ay-m-ah-r-ay
To Sleep	d-ormire	d-oh-r-m-e-r-ay
To Live	vivere	v-e-v-ay-r-ay
To Die	morire	m-oh-r-e-r-ay
To Kill-Adnecare	annegare	ah-n-n-ay-g-ah-r-ay
To Kill-Occidere	utʃfidere	u-t-ts-e-d-ay-er-ay
To Fight	puppare	p-u-VdPalatalNasal-VdPalatalNasal-ah-r-ay
To Fight-Battuere	batt-ere	b-ah-t-t-ay-r-ay
To Hunt-Captiare	katʃf-are	k-ah-t-ts-ah-r-ay
To Scratch	radere	r-ah-d-ay-r-ay
To Scratch-Rasare	rasare	r-ah-s-ah-r-ay
To Swim	nwotare	n-w-oh-t-ah-er-ay
To Swim-Navigare	navigare	n-ah-v-e-g-ah-r-ay
To Fly	volare	v-oh-l-ah-er-ay
To Fly-Exvolare	zvolare	zz-v-oh-l-ah-er-ay
To Walk	kamminare	k-ah-m-m-e-n-ah-er-ay
To Walk-Mergere	mærdʒere	m-eh-r-VdPalatoAlveolarSibilant-ay-r-ay
To Walk-Ambitare	and--are	ah-n-d-ah-r-ay
To Come	venire	v-ay-n-e-er-ay
To Lie As In A Bed	e-stendere	ay-s-t-eh-n-d-ay-r-ay
To Lie As In A Bed-lacere	dʒa-tʃe:re	VdPalatoAlveolarSibilant-ah-ts-ai-er-ay
To Sit	s-edere	s-ay-d-ay-r-ay
To Stand	-stare	s-t-ah-r-ay
To Stand-Levare	levare	l-ay-v-ah-r-ay
To Stand-Altiare	-altsare	ah-l-VlAlveolarSibilantAffricate-ah-r-ay
To Turn Intransitive	tornare	t-oh-r-n-ah-r-ay
To Turn Intransitive-Gyrare	dʒirare	VdPalatoAlveolarSibilant-e-r-ah-er-ay
To Turn Intransitive	virare	v-e-r-ah-er-ay
-AncestralClass3		
To Turn Intransitive-Torquere	tɔrtʃere	t-euh-r-ts-ay-r-ay
To Fall	k-adere	k-ah-d-ay-er-ay
To Hold	ten-ere	t-ay-n-ay-er-ay
To Squeeze	--sprem-ere	s-p-r-eh-m-ay-r-ay
To Squeeze-Serare	serrare	s-ay-r-r-ah-r-ay
To Squeeze-Stringere	-strindʒere	s-t-r-e-n-VdPalatoAlveolarSibilant-ay-r-ay
To Rub	fregare	f-r-ay-j-ah-r-ay

## Appendix 5 - Word Lists by Language

ToRub-Frictare	frettare	f-r-ay-t-t-ah-r-ay
ToWash	lavare	l-ah-v-ah-r-ay
ToWipe	tərdzere	t-eh-r-VdPalatoAlveolarSibilant-ay-r-ay
ToWipe-Exsucare	aff-ug-are	ah-shh-shh-u-g-ah-r-ay
ToPull	tirare	t-e-r-ah-r-ay
ToPull-Pulsare	pulsare	p-u-l-s-ah-r-ay
ToPull-Trahere	trar-re	t-r-ah-r-r-ay
ToPush	impindzere	e-m-p-e-n-VdPalatoAlveolarSibilant-ay-r-ay
ToThrow	dʒettare	VdPalatoAlveolarSibilant-ay-t-t-ah-r-ay
ToThrow-Lanceare	lantʃare	l-ah-n-ts-ah-r-ay
ToThrow-Eruncare	arrontʃare	ah-r-r-oh-n-ts-ah-r-ay
ToTie	legare	l-ay-g-ah-r-ay
ToSew	ku--tʃ-ire	k-u-ts-e-r-ay
ToCount	kon--tare	k-oh-n-t-ah-r-ay
ToCount-Enumerare	enumerare	ay-n-u-m-ay-r-ah-r-ay
ToSay	di--re	d-e-r-ay
ToSay-Exponere	--spor-re	s-p-oh-r-r-ay
ToSing-AncestralClass	kantare	k-ah-n-t-ah-r-ay
ToPlay-Jiocare	dʒo-kare	VdPalatoAlveolarSibilant-oh-k-ah-r-ay
ToFloat	fluttuare	f-l-u-t-t-u-ah-r-ay
ToFloat-Flutare	flutare	f-l-u-e-t-ah-r-ay
ToFlow	fluire	f-l-u-e-r-ay
ToFlow-Colare	kolare	k-oh-l-ah-r-ay
ToFlow-Excurrere	--skorrere	s-k-oh-r-r-ay-r-ay
ToFlow-Currere	korrere	k-oh-r-r-ay-r-ay
ToFreeze	dʒelare	VdPalatoAlveolarSibilant-ay-l-ah-r-ay
ToFreeze-Glaciare	gʒattʃare	g-jg-ah-t-ts-jg-ah-r-ay
ToBurn-Brojan	brutʃare	b-r-u-ts-ah-r-ay
ToBurn-Cremare	kremare	k-r-ay-m-ah-r-ay
ToBurn-Flammare	fjammare	f-jg-ah-m-m-ah-r-ay
ToBurn-Ardere	ardere	ah-r-d-ay-r-ay
ToBurn-Flagrare	flagrare	f-l-ah-g-r-ah-r-ay
ToBurn-Incendere	intʃendjare	e-n-ts-eh-n-d-jg-ah-r-ay
ToBurn-AncestralClass8	ustolare	u-s-t-oh-l-ah-r-ay
All	onpi-	oh-VdPalatalNasal-VdPalatalNasal-e
All-Totus	tutto-	t-u-t-t-oh
Many	molto-	m-oh-l-t-oh
Many-Tantus	tanto-	t-ah-n-t-oh
Some	alkuno	ah-l-k-u-n-oh
Few	poko-	p-euh-k-oh
Other	alt-ro	ah-l-t-r-oh
Big	mappo-	m-ah-VdPalatalNasal-VdPalatalNasal-oh

## Appendix 5 - Word Lists by Language

Big-Grandem	grande-	g-r-ah-n-d-ay
Long-Longum	lu-ngo-	l-u-n-g-oh
Long-Largum	largo-	l-ah-r-g-oh
Wide	lato-	l-ah-t-oh
Wide-Amplum	ampjo-	ah-m-p-jg-oh
Heavy	grave-	g-r-eh-v-ay
Heavy-Lurdus	lordo-	l-oh-r-d-oh
Heavy-Pesant	pesante	p-ay-s-ah-n-t-ay
Small-Pittinus	pittfino-	p-e-t-ts-e-n-oh
Small-Pitulus	pikkolo-	p-e-k-k-oh-l-oh
Short	korto-	k-oh-r-t-oh
Short-Brevis	breve-	b-r-eh-v-ay
Narrow	angusto-	ah-n-g-u-s-t-oh
Narrow-Strictus	-str-e-tto-	s-t-r-ay-t-t-oh
Thin	minu-to-	m-e-n-u-t-oh
Thin-Delicatus	delikato-	d-ay-l-e-k-ah-t-oh
Thin-Subtilis	sottile-	s-oh-t-t-e-l-ay
Green	ver-de-	v-ay-r-d-ay
One	'uno-	u-n-oh
Two-Duae	du-e	d-u-ay
Three	'tr-e-	t-r-ay
Four	kwatt--ro	k-w-ah-t-t-r-oh
Five	'tfinke	ts-e-nya-k-w-ay
Here	---kw--i-	k-w-e
There	--la-	l-ah
There-Ibi	-vi	v-e
Who-Qui	k-i-	k-e
What	k-e-	k-ay
When-Quando	kwando	k-w-ah-n-d-oh
How-Quomodo	kome--	k-oh-m-ay
Not	non	n-oh-n
Not-Nec	ne-	n-ay
And-Et	e-	ay

### Brazilian Portuguese

Ancestral Class	IPA	Sounds
I	-e-w	ay-w
We	nɔj-s	n-euh-jg-s
YouPlural	vɔjs	v-euh-jg-s
YouSingular	tu	t-u
YouSingular-VostramMercedem	vos-e-	v-oh-s-ay

## Appendix 5 - Word Lists by Language

Woman	fe-me---e	f-ay-m-ay-ahh
Woman-Mulier	muʎ-eʁ--	m-u-yuh-ay-rr
Woman-Domina	do--ne	d-oh-n-ahh
ManHumanBeing	omẽj---	oh-m-nasal_diphthong_portuguese1
Child	ĩ-fẽ-tʃi-	een-f-ahm-ts-e
Child-Ninnus	nenẽj	n-ay-n-nasal_diphthong_portuguese1
Wife	ispo-za	e-s-p-oh-zz-ah
Wife-Mulier	muʎ-eʁ-	m-u-yuh-ay-rr
Husband	maridu-	m-ah-er-e-d-u
Husband-Sponsus	ispo-zu-	e-s-p-oh-zz-u
Mother	mẽj----	m-nasal_diphthong_portuguese2
Fish-Piskem	pejʃ-i-	p-ej_diphthong-shh-e
Bird-Avem	avi-	ah-v-e
Bird-Passerem	pa-sɛru-	p-ah-s-ahh-er-u
Fruit	fru--tɐ-	f-er-u-t-ahh
Flower	flox--	f-l-oh-rr
Nose-Nares	naris-	n-ah-er-e-s
Sun	sɔw--	s-euh-w
Moon	lu-e	l-u-ahh
Star	istre-lɐ	e-s-t-er-ay-l-ahh
Water	'a-gwɐ	ah-g-w-ahh
Rain	ʃ-u-v-e	shh-u-v-ahh
Lake	lagu-	l-ah-g-u
Sea	maʁ-	m-ah-rr
Salt	saw--	s-ah-w
Earth	't-e-ʁɐ	t-ay-rr-ahh
Fog	kalizẽj---	k-ah-l-e-gzah-nasal_diphthong_portuguese1
Fog-Nebula	n-ɛ-vw-e	n-eh-v-w-ahh
Fog-Fumata	fumase	f-u-m-ah-s-ahh
Sky	s-ɛw--	s-eh-w
Wind	'v-ẽ-tu-	v-ehn-t-u
Fire-Focus	f-ogu-	f-oh-g-u
Year	e-nu-	ahh-n-u
Name-Nomen	nomi-	n-oh-m-e
Tongue	'lĩ-gwɐ	l-een-g-w-ahh
ToDrink	beb-eʁ-	b-ay-b-ay-rr
ToEat	kome---	k-oh-m-ay
ToEat-Manducare	mẽ-ʒ--aʁ-	m-ahn-gzah-ah-rr
ToBite	m-oʁdeʁ-	m-oh-rr-d-ay-rr
ToBite-Morsicare	mu-səga--	m-u-s-aah-g-ah
ToSuck	sugaʁ-	s-u-g-ah-rr
ToSpit	ku-spiʁ	k-u-s-p-e-rr



## Appendix 5 - Word Lists by Language

ToKnow-Sapere	sab-ев-	s-ah-b-ay-rr
ToKnow-Cognoscere	ko-пес-ев-	k-oh-VdPalatalNasal-ay-s-ay-rr
ToThink	k-uзitaв-	k-u-gzah-e-t-ah-rr
ToThink-Pensare	pě-sав-	p-ehn-s-ah-rr
ToFear	temев-	t-ay-m-ay-rr
ToFear-Tremere	trem-ев-	t-er-ay-m-ay-rr
ToSleep	d-оѡmiv-	d-oh-rr-m-e-rr
ToLive	viveв-	v-e-v-ay-rr
ToDie	moвев-	m-oh-rr-ay-rr
ToKill-Mactare	ma-tав-	m-ah-t-ah-rr
ToFight-Battuere	ba-tев-	b-ah-t-ay-rr
ToHunt-Captiare	ka-s-ав-	k-ah-s-ah-rr
ToScratch	ѡa-ев-	rr-ah-ay-rr
ToScratch-Rasare	ѡazав-	rr-ah-zz-ah-rr
ToScratch-Rasicare	ѡajkaв	rr-ah-shh-k-ah-rr
ToScratch-Coctiare	kosaɹ	k-oh-s-ah-VdRetroflexApproximant
ToSwim	n-adaв-	n-ah-d-ah-rr
ToSwim-Navigare	naviуав-	n-ah-v-eee-juh-ah-rr
ToFly	vo-ав-	v-oh-ah-rr
ToWalk	kemipaв-	k-ahh-m-e-VdPalatalNasal-ah-rr
ToWalk-Ambitare	ě-d--ав-	ahn-d-ah-rr
ToCome	v--iv-	v-e-rr
ToLieAsInABed	istě-deв-	e-s-t-ehn-d-ay-rr
ToLieAsInABed-lacere	ze-zeв-	gzah-ahh-zz-ay-rr
ToSit	s-e--в-	s-ay-rr
ToSit-Sedentare	sě---tar-	s-ehn-t-ah-er
ToStand	iftar-	eee-shh-t-ah-er
ToStand-Levare	levав-	l-ay-v-ah-rr
ToStand-Altiare	-aɿs-a--	ah-ssha-s-ah
ToTurnIntransitive	toɹnav-	t-oh-rr-n-ah-rr
ToTurnIntransitive-Gyrare	zirar-	gzah-e-er-ah-er
ToTurnIntransitive	virar-	v-e-er-ah-er
-AncestralClass3		
ToTurnIntransitive-Torquere	turser-	t-u-r-s-ay-r
ToFall	k-е-ir-	k-ahh-e-er
ToFall-Tumbare	tō-bав	t-on-b-ah-rr
ToHold	te---в-	t-ay-rr
ToHold-Segurar	sigurав	s-eee-g-u-er-ah-rr
ToSqueeze	i-ʃpɹəm-ев-	e-shh-p-r-aah-m-ay-rr
ToSqueeze-Serrere	se-ѡa--	s-ay-rr-ah
ToSqueeze-Serare	si-ѡar-	s-eee-rr-ah-er
ToSqueeze-Appetorare	e-pi-r-tar-	ahh-p-eee-er-t-ah-er

## Appendix 5 - Word Lists by Language

ToSqueeze-Stringere	əftrĩ-zir-	aah-shh-t-r-eeen-gzah-e-r
ToRub-Exfricare	iffrigar	eee-shh-f-er-eee-g-ah-er
ToWash	lɛvar-	l-ahh-v-ah-er
ToWipe-Exsucare	ẽ-f-ug-ar-	ehn-shh-u-g-ah-er
ToWipe-Limpidare	lĩ-p--ar-	l-eeen-p-ah-er
ToPull	tʃira--	ts-e-er-ah
ToPull-Pulsare	pu-far-	p-u-shh-ah-er
ToPull-Trahere	traze--	t-er-ah-zz-ay
ToThrow	zejtar	gzah-ej_diphthong-t-ah-er
ToThrow-Lanceare	lẽ-s-a--	l-ahn-s-ah
ToTie-Aptare	e-tar-	ahh-t-ah-er
ToSew	ku--z-er-	k-u-zz-ay-er
ToCount	kõ---tar-	k-on-t-ah-er
ToCount-Enumerare	enumerar-	ay-n-u-m-ay-er-ah-er
ToSay	diz-er	d-e-zz-ay-er
ToSing-AncestralClass	kẽ-tar-	k-ahn-t-ah-er
ToPlay-Jiocare	ʒo-gaʁ-	gzah-oh-g-ah-rr
ToFloat	flu-tuaʁ-	f-l-u-t-u-ah-rr
ToFlow	flwiʁ-	f-l-w-e-rr
ToFlow-Colare	ko-aʁ-	k-oh-ah-rr
ToFlow-Excurrere	i-ʃko-ʁeʁ-	e-shh-k-oh-rr-ay-rr
ToFlow-Currere	ko-ʁeʁ-	k-oh-rr-ay-rr
ToFreeze	ʒilar-	gzah-eee-l-ah-er
ToBurn-Cremare	k-ejmare	k-diphthong_portuguese-m-ah-er-ay
ToBurn-Ardere	aʁdeʁ-	ah-rr-d-ay-rr
ToBurn-Flagrare	flagʁaʁ-	f-l-ah-j-rr-ah-rr
ToBurn-Incendere	ĩ-sendʒiar-	een-s-ay-n-VdPalatoAlveolarSibilant -NearCloseFrontUnrounded-ah-er
All-Totus	to-du-	t-oh-d-u
Many	mũj-tu	m-ooo-jn-t-u
Many-Tantus	tẽ-tu	t-ahn-t-u
Some	awgũ--	ah-w-g-ooo
Few	powku	p-oh-w-k-u
Other	owt-ru	oh-w-t-er-u
Other-Alius	aw---	ah-w
Big-Grandem	grẽ-dʒi-	g-er-ahn-VdPalatoAlveolarSibilant-e
Long-Longum	lõ-gu-	l-on-g-u
Long-Largum	laʁgu-	l-ah-rr-g-u
Wide	latu-	l-ah-t-u
Wide-Amplum	ẽ-f-u-	ahn-shh-u
Heavy	gravi-	g-er-ah-v-e
Heavy-Lurdus	lerdo-	l-ay-er-d-oh

## Appendix 5 - Word Lists by Language

Heavy-Pesant	peza-du	p-ay-zz-ah-d-u
Small-Pittinus	pekenu-	p-ay-k-ay-n-u
Short	kuɾtu-	k-u-rr-t-u
Short-Brevis	'brɛvi-	b-er-eh-v-e
Narrow-Strictus	istr-ej--tu-	e-s-t-er-ej_diphthong-t-u
Thin	mi-u-du-	m-e-u-d-u
Thin-Delicatus	dew-gadu-	d-ay-w-g-ah-d-u
Thin-Subtilis	sutʃiw--	s-u-ts-e-w
Green	ver-di-	v-ay-er-d-eee
One	ũ---	ooo
Two-Duos	d-ojs	d-oj_diphthong-s
Two-Duas	dues	d-u-ahh-s
Three	tr-es	t-er-ay-s
Four	kwa-t--ru	k-w-ah-t-er-u
Five	'sĩ-k-u	s-een-k-u
Here	-a-k---i-	ah-k-e
There	--la-	l-ah
There-Adlbi	ai	ah-e
Who-Quem	k-ẽj--	k-nasal_diphthong_portuguese1
What	k-i-	k-e
When-Quando	kwẽ-du	k-w-ahn-d-u
How-Quomodo	komu--	k-oh-m-u
Not	nẽw	n-ahn-wh
Not-Nec	nẽj	n-nasal_diphthong_portuguese1
And-Et	i-	e

## Portuguese

Ancestral Class	IPA	Sounds
I	-e-w	ay-w
We	nɔʃ	n-euh-shh
YouPlural	voʃ	v-oh-shh
YouSingular	tu	t-u
YouSingular-VostramMercedem	vɔs-e-	v-euh-s-ay
Woman	'fe-mj---e	f-ay-m-jg-ahh
Woman-Mulier	muʎ-er--	m-u-yuh-ay-er
Woman-Domina	do--nɐ	d-oh-n-ahh
ManHumanBeing	ɔmẽj---	euh-m-nasal_diphthong_portuguese1
Child	ĩ-fɛ-ti-	een-f-ahn-t-eee
Child-Ninnus	nenẽj	n-ay-n-nasal_diphthong_portuguese1
Wife	ɨʃpo-zɐ	eee-shh-p-oh-zz-ahh
Wife-Mulier	muʎ-er-	m-u-yuh-ay-er

## Appendix 5 - Word Lists by Language

Husband	meriðu-	m-ahh-er-e-dd-u
Husband-Sponsus	ifpo-zu-	eee-shh-p-oh-zz-u
Mother	mēĩ---	m-nasal_diphthong_portuguese2
Fish-Piskem	peĩf-i-	p-diphthong_portuguese-shh-eee
Bird-Avem	avi-	ah-v-eee
Bird-Passerem	pa-seɾu-	p-ah-s-ahh-er-u
Fruit	fru--tə-	f-er-u-t-ahh
Flower	flor--	f-l-oh-er
Nose-Nares	nerif-	n-ahh-er-e-shh
Sun	sɔt--	s-euh-ssha
Moon	lu-e	l-u-ahh
Star	iftre-lə	eee-shh-t-er-ay-l-ahh
Water	'a-gwə	ah-g-w-ahh
Rain	ʃ-u-v-e	shh-u-v-ahh
Lake	layu-	l-ah-juh-u
Sea	mar-	m-ah-er
Salt	sal--	s-ah-l
Earth	't-ɛ-ʁə	t-eh-rr-ahh
Fog	kəlizēĩ---	k-ahh-l-e-gzah-nasal_diphthong_portuguese2
Fog-Nebula	n-ɛ-vw-e	n-eh-v-w-ahh
Fog-Tenebras	tr---ɛv-ɛʃ	t-er-eh-v-ahh-shh
Fog-Fumata	fumase	f-u-m-ah-s-ahh
Sky	s-ɛw--	s-eh-w
Wind	'v-ē-tu-	v-ehn-t-u
Fire-Focus	f-oɣu-	f-oh-juh-u
Year	e-nu-	ahh-n-u
Name-Nomen	nomi-	n-oh-m-eee
Tongue	'lĩ-gwə	l-een-g-w-ahh
ToDrink	biß-er-	b-eee-bb-ay-er
ToEat	kum--er-	k-u-m-ay-er
ToEat-Manducare	mē-ʒ--ar-	m-ahn-gzah-ah-er
ToBite	m-urðer-	m-u-er-dd-ay-er
ToBite-Morsicare	mu-səgar-	m-u-s-aah-g-ah-r
ToSuck	sugar-	s-u-g-ah-er
ToSpit	ku-ʃpir	k-u-shh-p-e-er
ToKnow-Sapere	səb-er-	s-ahh-b-ay-er
ToKnow-Cognoscere	ku-ɲis-er-	k-u-VdPalatalNasal-eee-s-ay-er
ToThink	k-uʒitar-	k-u-gzah-e-t-ah-er
ToThink-Pensare	pē-sar-	p-ehn-s-ah-er
ToFear	timer-	t-eee-m-ay-er
ToFear-Tremere	trɪm-er-	t-er-eee-m-ay-er
ToSleep	d-urmir-	d-u-er-m-e-er

## Appendix 5 - Word Lists by Language

ToLive	viver-	v-e-v-ay-er
ToDie	muxer-	m-u-rr-ay-er
ToKill-Mactare	mɛ-tar-	m-ahh-t-ah-er
ToFight-Battuere	bɛ-t-er-	b-ahh-t-ay-er
ToHunt-Captiare	kɛ-s-ar-	k-ahh-s-ah-er
ToScratch	ʁɛ-er-	rr-ahh-ay-er
ToScratch-Rasare	ʁɛzar-	rr-ahh-zz-ah-er
ToScratch-Rasicare	ʁɛʃkar	rr-ahh-shh-k-ah-er
ToScratch-Coctiare	kusar	k-u-s-ah-er
ToSwim	n-ɛðar-	n-ahh-dd-ah-er
ToSwim-Navigare	nɛviyar-	n-ahh-v-eee-juh-ah-er
ToFly	vw-ar-	v-w-ah-er
ToWalk	kemipar-	k-ahh-m-e-VdPalatalNasal-ah-er
ToWalk-Ambitare	ẽ-d--ar-	ahn-d-ah-er
ToCome	v--ir-	v-e-er
ToLieAsInABed	iftẽ-der-	e-shh-t-ehn-d-ay-er
ToLieAsInABed-lacere	ʒɛ-zer-	gzah-ahh-zz-ay-er
ToSit	s-e--r-	s-ay-er
ToSit-Sedentare	sẽ---tar-	s-ehn-t-ah-er
ToStand	iftar-	eee-shh-t-ah-er
ToStand-Levare	lɪvar-	l-eee-v-ah-er
ToStand-Altiare	-aʎs-ar-	ah-ssha-s-ah-er
ToTurnIntransitive	turnar-	t-u-er-n-ah-er
ToTurnIntransitive-Gyrare	ʒɪrar-	gzah-e-er-ah-er
ToTurnIntransitive	ʒɪrar-	gzah-e-er-ah-er
-AncestralClass3		
ToTurnIntransitive-Torquere	turser-	t-u-r-s-ay-r
ToFall	k-ɛ-ir-	k-ahh-e-er
ToFall-Tumbare	tõ-bar	t-on-b-ah-er
ToHold	te---r-	t-ay-er
ToHold-Segurar	siyurar	s-eee-juh-u-er-ah-er
ToSqueeze	i-ʃprəm-er-	e-shh-p-r-aah-m-ay-r
ToSqueeze-Serrere	sə-rar-	s-aah-VlUvularTrill-ah-er
ToSqueeze-Serare	si-Ɂar-	s-eee-rr-ah-er
ToSqueeze-Appetorare	ɛ-pi-r-tar-	ahh-p-eee-er-t-ah-er
ToSqueeze-Stringere	əʃtriʒir-	aah-shh-t-r-een-gzah-e-r
ToRub-Exfricare	ɪʃfriyar	eee-shh-f-er-eee-juh-ah-er
ToWash	lɛvar-	l-ahh-v-ah-er
ToWipe-Exsucare	ẽ-ʃ-uɣ-ar-	ehn-shh-u-juh-ah-er
ToWipe-Limpidare	lĩ-p--ar-	l-een-p-ah-er
ToPull	tirar-	t-e-er-ah-er
ToPull-Pulsare	pu-far-	p-u-shh-ah-er

## Appendix 5 - Word Lists by Language

ToPull-Trahere	trezer-	t-er-ahh-zz-ay-er
ToThrow	zejtar	gzah-ej_diphthong-t-ah-er
ToThrow-Lanceare	lě-s-ar-	l-ahn-s-ah-er
ToTie-Aptare	e-tar-	ahh-t-ah-er
ToSew	ku--z-er-	k-u-zz-ay-er
ToCount	kõ---tar-	k-on-t-ah-er
ToCount-Enumerare	enumerar-	ay-n-u-m-ay-er-ah-er
ToSay	diz-er	d-e-zz-ay-er
ToSing-AncestralClass	kě-tar-	k-ahn-t-ah-er
ToPlay-Jiocare	zu-ȳar-	gzah-u-juh-ah-er
ToFloat	flu-tuar-	f-l-u-t-u-ah-er
ToFlow	flwir-	f-l-w-e-er
ToFlow-Colare	ku-ar-	k-u-ah-er
ToFlow-Excurrere	i-ʃku-rer-	e-shh-k-u-VIUvularTrill-ay-er
ToFlow-Currere	ku-ker-	k-u-rr-ay-er
ToFreeze	zilar-	gzah-eee-l-ah-er
ToBurn-Cremare	k-ejmake	k-ej_diphthong-m-ah-rr-ay
ToBurn-Ardere	erder-	ahh-er-d-ay-er
ToBurn-Flagrare	flagrar-	f-l-ah-g-er-ah-er
ToBurn-Incendere	ĩ-sě-djar-	een-s-ehn-d-jg-ah-er
All-Totus	to-đu-	t-oh-dd-u
Many	mũj-tu	m-ooo-jn-t-u
Many-Tantus	tě-tu-	t-ahn-t-u
Some	ałgũ--	ah-ssha-g-ooo
Few	powku	p-oh-w-k-u
Other	owt-ru	oh-w-t-er-u
Other-Alius	ał---	ah-ssha
Big-Grandem	grě-di-	g-er-ahn-d-eee
Long-Longum	lō-gu-	l-on-g-u
Long-Largum	largu-	l-ah-er-g-u
Wide	latu-	l-ah-t-u
Wide-Amplum	ě-f-u-	ahn-shh-u
Heavy	gravi-	g-er-ah-v-eee
Heavy-Lurdus	lerdo-	l-ay-er-d-oh
Heavy-Pesant	piza-đu	p-eee-zz-ah-dd-u
Small-Pittinus	pikenu-	p-eee-k-ay-n-u
Short	kurtu-	k-u-er-t-u
Short-Brevis	'brevi-	b-er-eh-v-eee
Narrow-Strictus	iftr-ey--tu-	eee-shh-t-er-diphthong_portuguese-t-u
Thin	mi-u-đu-	m-e-u-dd-u
Thin-Delicatus	dɛł-ȳađu-	d-eh-ssha-juh-ah-dd-u
Thin-Subtilis	sutfiw--	s-u-ts-e-w

## Appendix 5 - Word Lists by Language

Green	ver-di-	v-ay-er-d-eee
One	ũ---	ooo
Two-Duos	d-ojʃ	d-oj_diphthong-shh
Two-Duas	dueʃ	d-u-ahh-shh
Three	tr-eʃ	t-er-ay-shh
Four	kwa-t--ru	k-w-ah-t-er-u
Five	'sĩ-k-u	s-een-k-u
Here	-e-k---i-	ahh-k-e
There	--la-	l-ah
There-Adlbi	ei	ahh-e
Who-Quem	k-ẽj--	k-nasal_diphthong_portuguese2
What	k-i-	k-eee
When-Quando	kwẽ-du	k-w-ahn-d-u
How-Quomodo	komu--	k-oh-m-u
Not	nẽwĩ	n-ahn-wh
Not-Nec	nẽj	n-nasal_diphthong_portuguese2
And-Et	i-	e

## Catalan

Ancestral Class	IPA	Sounds
I	ʒ--ɔ	gzah-euh
YouPlural	bu-s	b-u-s
YouSingular	tu	t-u
YouSingular-VostramMercedem	voste-	v-oh-s-t-ay
Woman	fe-m-br-a	f-ay-m-b-er-ah
Woman-Mulier	muʎ-e---	m-u-yuh-ay
Woman-Domina	dɔ--nə	d-euh-n-aah
ManHumanBeing	-ɔmə---	euh-m-aah
Child-Ninnus	nen-	n-ay-n
Wife	əspɔ-zə	aah-s-p-euh-zz-aah
Wife-Mulier	muʎ-e-	m-u-yuh-ay
Husband	marit--	m-ah-er-e-t
Husband-Sponsus	əspɔ-s--	aah-s-p-euh-s
Mother	ma-rə-	m-ah-er-aah
Fish-Piskem	peʃ---	p-ay-shh
Bird-Avem	aw--	ah-w
Bird-Avicellum	--u--s-e-ʎ--	u-s-ay-yuh
Fruit	fruj-t--	f-er-u-jg-t
Flower	flɔ---	f-l-euh
Nose	nas	n-ah-s
Nose-Nares	na:ris-	n-A-r-NearCloseFrontUnrounded-s

## Appendix 5 - Word Lists by Language

Sun	sɔl--	s-euh-l
Moon	ʎunə	yuh-u-n-aah
Star	əst-ɛ-l-	aah-s-t-eh-l
Water	'aj-ɣwə	aj_diphthong-juh-w-aah
Rain	plu-ʒ-ə	p-l-u-gzah-aah
Lake	ʎak--	yuh-ah-k
Sea	mar-	m-ah-r
Salt	sal--	s-ah-l
Earth	't-ɛ-rə	t-eh-r-aah
Fog-Nebula	n-e--wlə	n-ay-w-l-aah
Fog-Tenebras	t-ən-ebɾəs	t-aah-n-ay-b-er-aah-s
Sky	s-ɛl--	s-eh-l
Wind	b-en---	b-ay-n
Fire-Focus	f-ɔk--	f-euh-k
Year	a-ɲ--	ah-VdPalatalNasal
Name-Nomen	nɔm--	n-euh-m
ToDrink	bɛw--rə	b-eh-w-er-aah
ToEat-Manducare	məɲʒ--a--	m-aah-VdPalatalNasal-gzah-ah
ToBite-Morsicare	mu-səɣa--	m-u-s-aah-juh-ah
ToSpit-Exconspuere	əsku-pi	aah-s-k-u-p-e
ToKnow-Sapere	səβ-ɛ--	s-aah-bb-eh
ToKnow-Cognoscere	ku-nɛʃ-ə--	k-u-n-eh-shh-aah
ToThink	k-u-jda--	k-u-jg-d-ah
ToThink-Pensare	pənsa--	p-aah-n-s-ah
ToFear	temə--	t-ay-m-aah
ToSleep	d-urmi--	d-u-r-m-e
ToLive	biw-rə	b-e-w-er-aah
ToDie	muri--	m-u-er-e
ToKill	n-əga--	n-aah-g-ah
ToKill-Mactare	mə-ta--	m-aah-t-ah
ToKill-Occidere	uksi----	u-k-s-e
ToFight	pu-ɲa--	p-u-VdPalatalNasal-ah
ToFight-Battuere	ba-t--rə	b-ah-t-er-aah
ToHunt-Captiare	kə-s-a--	k-aah-s-ah
ToScratch	raw-rə	r-ah-w-er-aah
ToScratch-Rasare	rəza--	r-aah-zz-ah
ToScratch-Rasicare	rəska-	r-aah-s-k-ah
ToSwim	n-əda--	n-aah-d-ah
ToSwim-Navigare	nəbəga--	n-aah-b-aah-g-ah
ToFly	bula--	b-u-l-ah
ToWalk	kəmina--	k-aah-m-e-n-ah
ToCome	bəni--	b-aah-n-e



## Appendix 5 - Word Lists by Language

ToLieAsInABed	ə-stend-rə	aah-s-t-ay-n-d-er-aah
ToLieAsInABed-lacere	ʒaw--rə	gzah-ah-w-er-aah
ToStand	əsta--	aah-s-t-ah
ToStand-Levare	ʎəba--	yuh-aah-b-ah
ToStand-Altiare	-əls-a--	aah-l-s-ah
ToTurnIntransitive	turna-	t-u-r-n-ah
ToTurnIntransitive-Gyrare	ʒira--	gzah-e-er-ah
ToTurnIntransitive	bira--	b-e-er-ah
-AncestralClass3		
ToTurnIntransitive-Torquere	tɔrsə--	t-euh-r-s-aah
ToFall	k-aw-rə	k-ah-w-r-aah
ToFall-Tumbare	tumba-	t-u-m-b-ah
ToHold	tən-i--	t-aah-n-e
ToSqueeze	ə-sprem-ə--	aah-s-p-er-ay-m-aah
ToSqueeze-Serrere	sə-ra--	s-aah-r-ah
ToSqueeze-Stringere	əstreɲə	aah-s-t-er-eh-VdPalatalNasal-aah
ToRub	frəga--	f-er-aah-g-ah
ToRub-Frictiare	frəsa-	f-er-aah-s-ah
ToWash	ʎəba--	yuh-aah-b-ah
ToWipe-Extergere	ə-stərʒi--	aah-s-t-aah-r-gzah-e
ToWipe-Exsucare	ə-ʃ-uga--	aah-shh-u-g-ah
ToPull	tira--	t-e-er-ah
ToPull-Trahere	trɛw-rə	t-er-eh-w-er-aah
ToPush	əmpɛɲ-ə--	aah-m-p-eh-VdPalatalNasal-aah
ToThrow	xita	xha-e-t-ah
ToThrow-Lanceare	ʎəns-a--	yuh-aah-n-s-ah
ToTie	ʎiya--	yuh-e-juh-ah
ToSew	ku--z-i--	k-u-zz-e
ToCount	kum--ta--	k-u-m-t-ah
ToCount-Enumerare	enumera--	ay-n-u-m-ay-er-ah
ToSay	di	d-e
ToSing-AncestralClass	kənta--	k-aah-n-t-ah
ToPlay-Jiocare	ʒu-ga--	gzah-u-g-ah
ToFloat	fluktua--	f-l-u-k-t-u-ah
ToFlow	flui--	f-l-u-e
ToFlow-Colare	kuʎa--	k-u-ssha-ah
ToFlow-Excurrere	ə-sko-rə--	aah-s-k-oh-r-aah
ToFlow-Currere	ko-rə--	k-oh-r-aah
ToFreeze	ʒəla--	gzah-aah-l-ah
ToFreeze-Glaciare	glə-s-a--	g-l-aah-s-ah
ToBurn-Cremare	krəma--	k-r-aah-m-ah
ToBurn-Flammare	flama--	f-ssha-ah-m-ah

## Appendix 5 - Word Lists by Language

ToBurn-Incendere	ənsend--rə	aah-n-s-ay-n-d-er-aah
All-Totus	to-t--	t-oh-t
Many	mol---	m-oh-l
Many-Tantus	tant--	t-ah-n-t
Some	əlgū--	aah-l-g-u
Few	pək--	p-euh-k
Other	alt-rə	ah-l-t-er-aah
Big-Grandem	gran---	j-r-ah-n
Long-Longum	ʎo-ŋ---	yuh-oh-nya
Long-Largum	ʎark--	yuh-ah-er-k
Wide-Amplum	amplə-	ah-m-p-l-aah
Heavy	grew--	g-er-ay-w
Heavy-Pesant	pəza-t-	p-aah-zz-ah-t
Small	pətit--	p-aah-t-e-t
Short	kurt--	k-u-er-t
Short-Brevis	brew--	b-er-ay-w
Narrow-Strictus	əstr-ε--t--	aah-s-t-er-eh-t
Thin	mənu-t--	m-aah-n-u-t
Thin-Delicatus	dəlikat--	d-aah-l-e-k-ah-t
Thin-Subtilis	suptil--	s-u-p-t-e-l
Green	vər-t--	v-eh-er-t
One	'un--	u-n
Two-Duos	d-os	d-oh-s
Three	'tr-εs	t-r-eh-s
Four	kwa-t--rə	k-w-ah-t-er-aah
Five	'sɪŋk--	s-e-nya-k
Here	-a-k---i-	ah-k-e
There	ə-ʎa-	aah-yuh-ah
Who-Qui	k-i-	k-e
What	k-ε-	k-eh
When-Quando	kwan	k-w-ah-n
How-Quomodo	kəm---	k-euh-m
Not	no-	n-oh
Not-Nec	ni-	n-e
And-Et	i-	e

## Walloon

Ancestral Class	IPA	Sounds
I	dʒɪ--	VdPalatoAlveolarSibilant -NearCloseFrontUnrounded
We	no--	n-oh

## Appendix 5 - Word Lists by Language

YouPlural	vo-s	v-oh-s
YouSingular	ty	t-eeh
Woman	fœ-m-----	f-OpenMidNearFrontRounded-m
Woman-Domina	dœm---	d-OpenMidNearFrontRounded-m
ManHumanBeing	-ɔm----	euh-m
Child	ε-fǣ----	eh-f-an
Mother	me-r--	m-ay-VIUvularTrill
Fish-Pescion	p-ɛhð	p-eh-h-on
Bird-Avicellum	--u:-h-ε:-----	U-h-Eh
Fruit	fry-----	f-VIUvularTrill-eeh
Flower	flø:ʁ--	f-l-o-rr
Nose	ne---	n-ay
Sun	sɔb-	s-euh-l-euh
Moon	løn-	l-uu-n
Star	-st-ø:-l-	s-t-o-l
Water	ε:--w-	Eh-w
Rain	plu:-ʁ--	p-l-U-rr
Lake	lak--	l-ah-k
Sea	meʁ-	m-ay-rr
Salt	se---	s-ay
Earth	t-ε:-ʁ-	t-Eh-rr
Sky	s-i:ʁ--	s-E-rr
Wind	v-ẽ-----	v-ehn
Fire-Focus	f-ø:----	f-o
Year	ã----	an
Name-Nomen	nō---	n-on
Tongue	lẽu-----	l-eu_nasalized_diphthong
ToDrink	b---ø:ʁ-	b-o-rr
ToEat-Manducare	map---i:--	m-ah-VdPalatalNasal-E
ToSuck	sysi:--	s-eeh-s-E
ToKnow-Sapere	sav-ø:ʁ-	s-ah-v-o-VIUvularTrill
ToKnow-Cognoscere	ki-noh----	k-e-n-euh-h
ToThink-Pensare	pẽ-se--	p-ehnn-s-ay
ToSleep	dwaʁmi--	d-w-ah-rr-m-e
ToDie	mɔʁi--	m-euh-VIUvularTrill-e
ToKill-Tutari	tuw-e--	t-u-w-ay
ToFight-Battuere	bat-e--	b-ah-t-ay
ToHunt-Captiare	tʃε-s-i:--	ts-eh-s-E
ToSwim-Navigare	ne--dʒi:--	n-eh-VdPalatoAlveolarSibilant-E
ToFly	vɔle--	v-euh-l-ay
ToWalk	tʃimine--	ts-e-m-e-n-ay
ToWalk-Marcher	ma:rtʃi:	m-A-VIUvularTrill-ts-E

## Appendix 5 - Word Lists by Language

ToCome	vini--	v-e-n-e
ToLieAsInABed-lacere	dʒe--re	VdPalatoAlveolarSibilant-ay-r-ay
ToStand	ɛs----	eh-s
ToStand-Levare	løve--	l-aah-v-ay
ToStand-Altiare	hɔːs-iː	h-LongOpenMidBackRounded-s-E
ToTurnIntransitive	tu:rne-	t-U-r-n-ay
ToTurnIntransitive	viʁe--	v-e-rr-ay
-AncestralClass3		
ToFall	tʃ-ɛː--R-	ts-Eh-VIUvularTrill
ToFall-Tumbare	tum-e-	t-u-m-ay
ToHold	tin-i--	t-e-n-e
ToSqueeze-Serare	sɛ-re--	s-eh-VIUvularTrill-ay
ToSqueeze-Stringere	stringe	s-t-r-e-n-j-ay
ToRub	froj----	f-r-oj_diphthong
ToRub-Frictare	fʁote--	f-rr-oh-t-ay
ToWash	lave--	l-ah-v-ay
ToWipe-Exsucare	--s-u-we--	s-u-w-ay
ToPull	tire--	t-e-r-ay
ToPull-Pulsare	pu:si:--	p-U-s-E
ToThrow	dʒete	VdPalatoAlveolarSibilant-eh-t-ay
ToThrow-Lanceare	lanc-i:-	l-ah-n-tya-E
ToTie	lɔʝi:--	l-euh-jg-E
ToSew	kø:--z----	k-o-zz
ToCount	kõ--te--	k-on-t-ay
ToSay	di:--ʁ	d-E-rr
ToSing-AncestralClass	tʃã-te--	ts-an-t-ay
ToPlay-Jiocare	dʒuw-e--	VdPalatoAlveolarSibilant-u-w-ay
ToFlow-Colare	kɔle--	k-euh-l-ay
ToFreeze	dʒale--	VdPalatoAlveolarSibilant-ah-l-ay
ToBurn-Brojan	bʁuːle--	b-rr-U-l-ay
All-Totus	tɔ-----	t-euh
Few	põ---	p-on
Other	õ-t---	on-t
Big-Grandem	gɐã---	j-rr-an
Long-Longum	lõ-----	l-on
Heavy	grav--	j-r-ah-v
Small	pi-ti---	p-e-t-e
Short	ku:ʁ---	k-U-rr
Short-Brevis	bʁef--	b-rr-ay-f
Narrow-Strictus	-stʁ-ø:-----	s-t-rr-o
Thin	minu----	m-e-n-u
Thin-Subtilis	su:ti---	s-U-t-e

## Appendix 5 - Word Lists by Language

Green	vɛʁ----	v-eh-rr
One	õ---	on
Two-Duos	d-ø:-	d-o
Three	tr-ø:-	t-r-o
Four	kwa-t----	k-w-ah-t
Five	sẽ-k--	s-ehn-k
There	--la-	l-ah
Who-Qui	k-i:-	k-E
What	kwɛ:-	k-w-Eh
When-Quando	kwand	k-w-ah-n-d
How-Quomodo	kɔmẽ--	k-euh-m-ehnn
Not-Nec	nẽ-	n-ehn
And-Et	ɛ-	eh

## Friulian

Ancestral Class	IPA	Sounds
I	j--o	jg-oh
We	no:--	n-O
YouPlural	vo:--	v-O
YouSingular	tu	t-u
Woman	fɛ-mi-n-ɛ	f-eh-m-e-n-eh
Woman-Mulier	mu--i:r--	m-u-E-r
Woman-Domina	dɔ--ne	d-euh-n-ay
ManHumanBeing	-ɔm----	euh-m
Wife-Mulier	mu-i:r-	m-u-E-r
Husband	marit--	m-ah-r-E-t
Husband-Sponsus	-spo:-s--	s-p-O-s
Mother	mɔ-ri-	m-OpenBackRounded-r-e
Fish-Piskem	pɛs--	p-eh-s
Bird-Avicellum	--u--tʃjɛ-l--	u-ts-jg-eh-l
Fruit	fru--t--	f-r-u-t
Flower	flɔ:r--	f-l-O-r
Nose	na:s--	n-A-s
Sun-Soliculus	sore--li-	s-oh-r-ay-l-e
Moon	lune	l-u-n-ay
Star	-st-ɛ-le	s-t-eh-l-ay
Water	a-g-e	ah-j-ay
Rain	plo--je	p-l-oh-jg-ay
Lake	la:t--	l-A-t
Sea	ma:r-	m-A-r
Salt	sa:l--	s-A-l

## Appendix 5 - Word Lists by Language

Earth	tjε-re	t-jg-eh-r-ay
Fog-Fumata	fumate	f-u-m-ah-t-ay
Sky	tʃ-i:l--	ts-E-l
Wind	'v-int--	v-e-n-t
Fire-Focus	f-u:k--	f-U-k
Year	a-ŋ--	ah-nya
Name-Nomen	nɔŋ--	n-euh-nya
Tongue	'leng-ε	l-eh-n-j-eh
ToDrink	bevi--	b-ay-v-e
ToEat-Manducare	manj--a:--	m-ah-nya-VdPalatalStop-A
ToBite	mwardi--	m-w-ah-r-d-e
ToSuck	cuca:--	tya-u-tya-A
ToSpit-Sputare	spuda:--	s-p-u-d-A
ToKnow-Sapere	sav-e:--	s-ah-v-ai
ToKnow-Cognoscere	ko-ɲos-i--	k-oh-VdPalatalNasal-oh-s-e
ToThink-Pensare	penʃa:--	p-ay-nya-s-A
ToFear	temi--	t-ay-m-e
ToFear-Tremere	trim-a:--	t-r-e-m-A
ToSleep	d-urmi:--	d-u-r-m-E
ToLive	vivi--	v-e-v-e
ToDie	muri:--	m-u-r-E
ToKill-Mactare	maʃf-a:--	m-ah-VlAlveoloPalatalSibilantAffricate-A
ToFight-Battuere	bat-i--	b-ah-t-e
ToHunt-Captiare	ca-tʃ-a:--	tya-ah-ts-A
ToScratch	rada:--	r-ah-d-A
ToScratch-Rasare	rasa:--	r-ah-s-A
ToSwim	n-ada:--	n-ah-d-A
ToSwim-Navigare	naviga:--	n-ah-v-e-j-A
ToFly-Exvolare	zvola:--	zz-v-oh-l-A
ToWalk	tʃjamina--	ts-jg-ah-m-e-n-ah
ToCome	vipi:-	v-e-VdPalatalNasal-E
ToLieAsInABed-Iacere	je-si--	jg-ay-s-e
ToSit-Sedentare	se--nta:--	s-ay-n-t-A
ToStand	-sta:--	s-t-A
ToStand-Levare	leva:--	l-ay-v-A
ToStand-Altiare	-altʃ-a:	ah-l-t-shh-A
ToTurnIntransitive	torna:--	t-oh-r-n-A
ToTurnIntransitive-Gyrate	dʒira:--	VdPalatoAlveolarSibilant-e-r-A
ToTurnIntransitive	dʒira:--	VdPalatoAlveolarSibilant-e-r-A
-AncestralClass3		
ToFall	tʃjade--	ts-jg-ah-d-ay
ToHold	tinji--	t-e-n-jg-e

## Appendix 5 - Word Lists by Language

ToSqueeze	e-sprim-i--	ay-s-p-r-e-m-e
ToSqueeze-Stringere	strengi:--	s-t-r-eh-n-j-E
ToRub	fre-a--	f-r-ay-ah
ToWash	lava:--	l-ah-v-A
ToWipe-Exsucare	--s-u-ja:--	s-u-jg-A
ToPull	tira:--	t-e-r-A
ToPull-Pulsare	pulsa:--	p-u-l-s-A
ToPull-Trahere	traj---	t-r-aj_diphthong
ToThrow-Lanceare	lantfa:--	l-ah-n-ts-A
ToTie	le-a:--	l-ay-A
ToSew	ku--zi---	k-u-zz-e
ToCount	kon--ta:--	k-oh-n-t-A
ToSay	di:	d-E
ToSing-AncestralClass	canta:--	tya-ah-n-t-A
ToPlay-Jiocare	dʒuj-a:--	VdPalatoAlveolarSibilant-u-jg-A
ToFlow-Excurrere	--sko-ri:--	s-k-oh-r-E
ToFlow-Currere	ko-ri--	k-oh-r-e
ToFreeze-Glaciare	gla-tf-a:--	j-l-ah-ts-A
ToBurn-Brojan	bruza:--	b-r-u-zz-A
All-Totus	du-t--	d-u-t
Many	mole--	m-oh-l-tya
Many-Tantus	tanc--	t-ah-n-tya
Few	po:k-	p-O-k
Other	alt-ri	ah-l-t-r-e
Big-Grandem	grant--	j-r-ah-n-t
Long-Longum	lunk--	l-u-n-k
Long-Largum	lark--	l-ah-r-k
Heavy	grævi-	j-r-eh-v-e
Heavy-Pesant	pezant-	p-ay-zz-ah-n-t
Small-Pitulus	pi-tful--	p-e-ts-u-l
Short	kurt--	k-u-r-t
Narrow-Strictus	-str-ε--t--	s-t-r-eh-t
Thin	minu:t--	m-e-n-U-t
Thin-Subtilis	suti:l--	s-u-t-E-l
Green	ver-t--	v-eh-r-t
One	uŋ--	u-nya
Two-Duos	d-oj-	d-oj_diphthong
Three	'tr-e:-	t-r-ai
Four	kwa-t--ri	k-w-ah-t-r-e
Five	'tʃɪŋk--	ts-e-nya-k
Here	-a-k---i-	ah-k-e
Who-Qui	kwi-	k-w-e

## Appendix 5 - Word Lists by Language

What	tʃ-e-	ts-ay
When-Quando	kwant	k-w-ah-n-t
How-Quomodo	tʃemu:t-	ts-ay-m-U-t
Not	no-	n-oh
And-Et	e-	ay

### Romanian

Ancestral Class	IPA	Sounds
I	je-w	jg-ay-w
We	noj-	n-oj_diphthong
YouPlural	voj-	v-oj_diphthong
YouSingular	tu	t-u
Woman	fe-me--je	f-ay-m-ay-jg-ay
Woman-Mulier	mu-jere-	m-u-jg-ay-r-ay
Woman-Domina	dɔam-nə	d-midback_diphthong_romanian-m-n-aah
ManHumanBeing	-om----	oh-m
Wife-Mulier	mu-jere	m-u-jg-ay-r-ay
Husband	mərit--	m-aah-r-e-t
Husband-Socius	sots---	s-oh-VlAlveolarSibilantAffricate
Fish-Piskem	pefte-	p-ay-shh-t-ay
Bird-Passerem	pa-səre-	p-ah-s-aah-er-ay
Fruit	fru-kt--	f-r-u-k-t
Flower	flɔare-	f-l-midback_diphthong_romanian-er-ay
Nose	nas--	n-ah-s
Sun	sɔare-	s-midback_diphthong_romanian-er-ay
Moon	lunə	l-u-n-aah
Star	-st-ɛa---	s-t-midfront_diphthong_romanian
Water	a-p-ə	ah-p-aah
Rain	plɔa--je	p-l-midback_diphthong_romanian-jg-ay
Lake	lak--	l-ah-k
Sea	mare	m-ah-r-ay
Salt	sare-	s-ah-r-ay
Earth	ts-a-rə	VlAlveolarSibilantAffricate-ah-r-aah
Fog-Nebula	negurə	n-ay-g-u-r-aah
Fog-Caecia	tʃeɪtʃ-ə	ts-midfront_diphthong_romanian-ts-aah
Sky	tʃ-er--	ts-ay-er
Wind	v-int--	v-eee-n-t
Fire-Focus	f-ok--	f-oh-k
Year	an---	ah-n
Name-Nomen	nume-	n-u-m-ay
Tongue	'limb-ə	l-e-m-b-aah



## Appendix 5 - Word Lists by Language

ToDrink	b---ɛa--	b-midfront_diphthong_romanian
ToEat-Manducare	mɪn--ka--	m-eee-n-k-ah
ToBite-Morsicare	murseka--	m-u-r-s-ay-k-ah
ToSuck	sudʒe--	s-u-VdPalatoAlveolarSibilant-ay
ToSpit-Exconspuere	-skujpa	s-k-u-jg-p-ah
ToKnow	ʃti--	shh-t-e
ToKnow-Cognoscere	ku-nɔaʃte--	k-u-n-midback_diphthong_romanian-shh-t-ay
ToThink	k-udʒeta--	k-u-VdPalatoAlveolarSibilant-ay-t-ah
ToThink-Pensare	pə-sa--	p-aah-s-ah
ToFear	teme--	t-ay-m-ay
ToSleep	d-ormi--	d-oh-r-m-e
ToLive	vi-a--	v-e-ah
ToDie	muri--	m-u-r-e
ToKill	n-eka--	n-ay-k-ah
ToKill-Occidere	u-tʃide--	u-ts-e-d-ay
ToFight-Battuere	bat-e--	b-ah-t-ay
ToScratch	rade--	r-ah-d-ay
ToSwim-Navigare	naviga--	n-ah-v-e-g-ah
ToFly-Exvolare	zbura--	zz-b-u-er-ah
ToWalk-Mergere	merdʒe--	m-ay-r-VdPalatoAlveolarSibilant-ay
ToCome	veni--	v-ay-n-e
ToLieAsInABed	ekstinde--	ay-k-s-t-e-n-d-ay
ToLieAsInABed-lacere	zə-tʃeɹa--	zz-aah-ts-midfront_diphthong_romanian
ToSit	ʃ-eɹeɹa--	shh-ay-d-midfront_diphthong_romanian
ToStand	-sta--	s-t-ah
ToStand-Levare	l-ua--	l-u-ah
ToTurnIntransitive	turna--	t-u-r-n-ah
ToTurnIntransitive-Torquere	tɔartʃe--	t-midback_diphthong_romanian-r-ts-ay
ToFall	kəɹeɹa--	k-aah-d-midfront_diphthong_romanian
ToFall-Tumbare	tumba-	t-u-m-b-ah
ToHold	tʃin-e--	VlAlveolarSibilantAffricate-e-n-ay
ToSqueeze	-sk-reme--	s-k-r-ay-m-ay
ToSqueeze-Stringere	strindʒe--	s-t-r-eee-n-VdPalatoAlveolarSibilant-ay
ToRub	freka--	f-r-ay-k-ah
ToWash	la---	l-ah
ToWipe-Extergere	--ʃterdʒe--	shh-t-ay-r-VdPalatoAlveolarSibilant-ay
ToWipe-Exsucare	u-s--k-a--	u-s-k-ah
ToPull-Pulsare	pulsa--	p-u-l-s-ah
ToPull-Trahere	tradʒe--	t-r-ah-VdPalatoAlveolarSibilant-ay
ToPush	impindʒe--	eee-m-p-e-n-VdPalatoAlveolarSibilant-ay
ToThrow-Eruncare	a-runʒka	ah-er-u-nya-k-ah
ToTie	lega--	l-ay-j-ah

## Appendix 5 - Word Lists by Language

ToSew	cqa--s-e--	tya-midback_diphthong_romanian-s-ay
ToCount-Enumerare	-numara--	n-u-m-ah-r-ah
ToSay	zitfe	zz-e-ts-ay
ToSay-Exponere	--spune	s-p-u-n-ay
ToSing-AncestralClass	kinta--	k-eee-n-t-ah
ToPlay-Jiocare	zu-ka--	gzah-u-k-ah
ToFloat	fluctua--	f-l-u-tya-t-u-ah
ToFlow-Excurrere	--skurdze--	s-k-u-er-VdPalatoAlveolarSibilant-ay
ToFlow-Currere	kurdze--	k-u-er-VdPalatoAlveolarSibilant-ay
ToFreeze-Inglaciare	ing-ets-a--	eee-n-j-ay-VlAlveolarSibilantAffricate-ah
ToBurn-Ardere	arde--	ah-er-d-ay
ToBurn-Incendere	intfindze--	eee-n-ts-e-n-d-gzah-ay
ToBurn-AncestralClass8	ustura--	u-s-t-u-r-ah
All-Totus	to-t--	t-oh-t
Many	mult--	m-u-l-t
Other	alt---	ah-l-t
Big-Majjorem	ma---re	m-ah-er-ay
Long-Longum	lung--	l-u-n-j
Long-Largum	larg--	l-ah-r-j
Wide	lat--	l-ah-t
Heavy	grew--	j-er-ay-w
Small-Pittinus	pu-tsin--	p-u-VlAlveolarSibilantAffricate-e-n
Narrow	ingust--	eee-nya-j-u-s-t
Narrow-Strictus	-str-im-t--	s-t-r-eee-m-t
Thin	mərunt--	m-aah-r-u-n-t
Thin-Subtilis	subtsire-	s-u-b-VlAlveolarSibilantAffricate-e-r-ay
Green	ver-de-	v-ay-er-d-ay
One	unu-	u-n-u
Two-Duos	d-oj-	d-oj_diphthong
Two-Duae	dowə	d-oh-w-aah
Three	tr-ej-	t-r-ej_diphthong
Four	p-a-t--ru	p-ah-t-r-u
Five	tfintf--	ts-e-n-ts
There	--la-	l-ah
Who-Quem	tf-ine	VlAlveoloPalatalSibilantAffricate-e-n-ay
What	tf-e-	ts-ay
When-Quando	k-ind	k-eee-n-d
How-Quomodo	kum---	k-u-m
Not	nu-	n-u
And-Et	e-	ay
And-Si	fi-	shh-e

## Appendix 6 - Segment Groups

### Pulmonic Consonants

Manner	Bilabial	Labial-Velar	Labio-Dental	Linguo-Labial	Dental	Alveolar	Post-Alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal-E	Glottal
Nasal	m					n			ɲ	ŋ			
Stop	p b	k <sup>w</sup> g <sup>w</sup>				t d			c ɟ	k g			
Sibilant, Fricative						s z	ʃ ʒ						
Fricative	β		f v		θ ð				j	x ɣ	ʁ		h
Approximan								ɭ	j				
Tap/Flap						ɾ							
Trill						r					R		
Lateral, Fricative													
Lateral, Ap						l			ɭ				
Lateral, Tap/Flap													

Shaded areas denote articulations judged to be impossible. Where symbols appear in pairs, the one to the right represents a modally voiced consonant.

### Non-Pulmonic Consonants

Manner	Bilabial	Labio-Dental	Velar	Uvular	Pharyngeal-Epiglottal
Ejective, Stop					
Ejective, Fricative					
Ejective, Lateral, Fricative					
Tennis, Click					
Nasal, Click					
Tennis, Lateral, Click					
Implosive					

Shaded areas denote articulations judged to be impossible. Where symbols appear in pairs, the one to the right represents a modally voiced consonant.

## Appendix 6 - Segment Groups

### Vowels

	Front	Near-Front	Central	Near-Back	Back
Close	ɪ • y		ɨ		u
Near-close		ɪ			
Close-mid	e • ø		ə		o
Mid					
Open-mid		œ • ɛ			ɔ
Near-open			ɐ		
Open		a			ɒ • ɑ

Where symbols appear in pairs, the one to the right represents a rounded vowel.

### Long Vowels

	Front	Near-Front	Central	Near-Back	Back
Close	ɪː				uː
Mid	eː				oː
Open-mid		ɛː			ɔː
Open	øː		aː		

### Pulmonic Affricates

Manner	Bilabial	Labio-Dental	Alveolar	Alveolo-Palat	Palato-Alveol	Velar	Uvular	Pharyngeal-E	Glottal
Sibilant			ts	tʃ	tʃ				
Non-Sibilant									
Lateral									

Shaded areas denote articulations judged to be impossible.

### Ejective Affricates

Manner	Bilabial	Labio-Dental	Pharyngeal-E	Glottal
Central				
Lateral				

Shaded areas denote articulations judged to be impossible.

## Appendix 6 - Segment Groups

### Other Segments

<b>e</b> Close-mid Front Vowoid Vowel Continuant	<b>g</b> Velar Voiced Pulmonic Stop Occlusive
<b>oː</b> Mid Back Rounded Vowoid Long Vowel Continuant	<b>ʒ</b> Post-Alveolar Voiced Pulmonic Sibilant Fricative Strident Obstruent Continuant
<b>ə</b> Close-mid Central Vowel	<b>j</b> Palatal Voiced Pulmonic Fricative Obstruent Continuant
<b>o</b> Close-mid Back Rounded Vowoid Vowel Continuant	<b>i</b> Close Front Vowoid Vowel Continuant
<b>w</b> Labial-Velar Vowoid Semivowel Voiced Approximant Continuant	<b>ɔ</b> Open-mid Back Rounded Vowoid Vowel Continuant
<b>dʒ</b> Palato-Alveolar Voiced Sibilant Affricate	<b>ɪ</b> Near-close Near-Front Vowel
<b>j</b> Palatal Vowoid Semivowel Voiced Pulmonic Approximant Continuant	<b>n</b> Alveolar Voiced Pulmonic Nasal Occlusive
<b>s</b> Alveolar Pulmonic Sibilant Fricative Strident Obstruent Continuant	<b>u</b> Close Back Rounded Vowoid Vowel Continuant
<b>ʃ</b> Post-Alveolar Pulmonic Sibilant Fricative Strident Obstruent Continuant	<b>oj</b> Mid Front Vowel Diphthong
<b>v</b> Labio-Dental Voiced Pulmonic Fricative Strident Obstruent Continuant	<b>b</b> Bilabial Voiced Pulmonic Stop Occlusive
<b>t</b> Alveolar Pulmonic Stop Occlusive	<b>uː</b> Close Back Rounded Long Vowel
<b>y</b> Close Front Rounded Vowoid Vowel Continuant	<b>d</b> Alveolar Voiced Pulmonic Stop Occlusive
<b>f</b> Labio-Dental Pulmonic Fricative Strident Obstruent Continuant	<b>eː</b> Mid Front Vowoid Long Vowel Continuant
<b>m</b> Bilabial Voiced Pulmonic Nasal Occlusive	<b>a</b> Open Near-Front Vowoid Vowel Continuant
<b>ɾ</b> Alveolar Voiced Pulmonic Tap/Flap Rhotic Vibrant Liquid	<b>ɐ</b> Near-open Central Rounded Vowel
<b>œ</b> Open-mid Near-Front Rounded Vowoid Vowel Continuant	<b>ɛ</b> Open-mid Near-Front Vowoid Vowel Continuant
<b>l</b> Alveolar Vowoid Voiced Pulmonic Lateral Approximant Rhotic Liquid	<b>r</b> Alveolar Voiced Pulmonic Trill Rhotic Vibrant Liquid
<b>x</b> Velar Pulmonic Fricative Obstruent Continuant	<b>ʎ</b> Palatal Vowoid Voiced Pulmonic Lateral Approximant Rhotic Liquid
<b>ʁ</b> Uvular Voiced Pulmonic Fricative Rhotic Strident Obstruent Continuant Liquid	<b>iː</b> Close Front Vowoid Long Vowel Continuant
<b>ɲ</b> Palatal Voiced Pulmonic Nasal Occlusive	<b>oː</b> Mid Front Vowel Diphthong

## Appendix 6 - Segment Groups

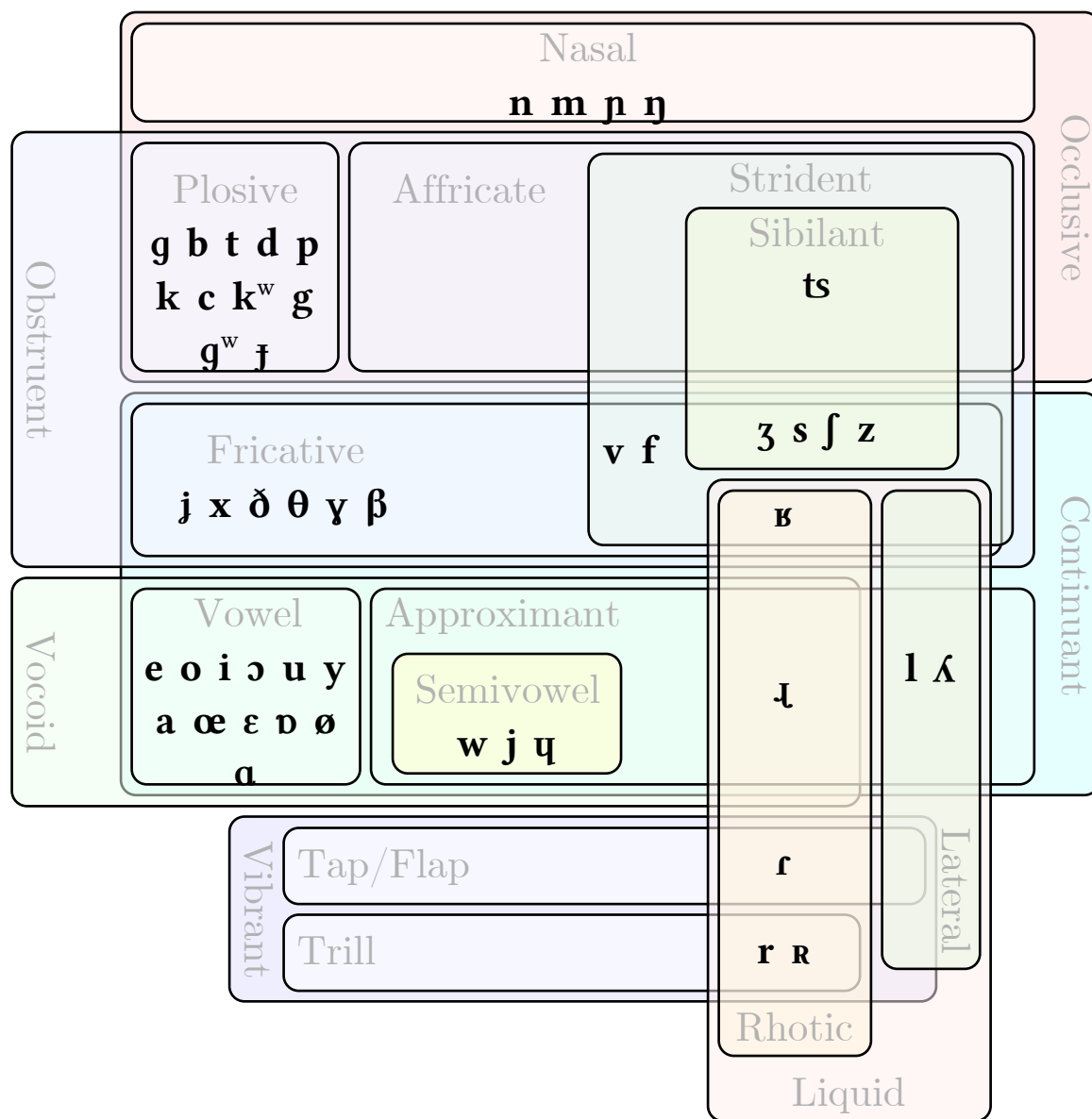
<b>h</b> Glottal Pulmonic Fricative	<b>ẽj</b> Mid Front Nasal Vowel Diphthong
<b>õ</b> Open-mid Back Rounded Nasal Vowel	<b>ã</b> Near-close Back Nasal Vowel
<b>ĩ</b> Close Front Nasal Vowel	<b>ẽ</b> Near-open Central Rounded Nasal Vowel
<b>ʈʂ</b> Palato-Alveolar Pulmonic Sibilant Affricate	<b>ɨ</b> Close Central Vowel
<b>ã</b> Near-open Central Nasal Vowel	<b>p</b> Bilabial Pulmonic Stop Occlusive
<b>ʒ</b> Alveolar Voiced Pulmonic Sibilant Fricative	<b>ð</b> Dental Voiced Pulmonic Fricative Obstruent
<b>ʒ</b> Strident Obstruent Continuant	<b>ð</b> Continuant
<b>k</b> Velar Pulmonic Stop Occlusive	<b>ʈʂ</b> Alveolar Pulmonic Sibilant Affricate Occlusive
<b>a:</b> Open Central Vowel Long Vowel Continuant	<b>ẽj</b> Mid Front Nasal Vowel Diphthong
<b>ʀ</b> Uvular Pulmonic Trill Rhotic Vibrant Liquid	<b>ɒ</b> Open Back Rounded Vowel Continuant
<b>θ</b> Dental Pulmonic Fricative Obstruent	<b>ej</b> Mid Front Vowel Diphthong
<b>θ</b> Continuant	<b>õ</b> Close-mid Back Rounded Nasal Vowel
<b>ej</b> Mid Front Vowel Diphthong	<b>ɥ</b> Labial-Palatal Vowel Semivowel Voiced
<b>ɔ:</b> Open-mid Near-Front Vowel Long Vowel	<b>ɥ</b> Approximant Continuant
<b>ɛ:</b> Continuant	<b>ɭ</b> Alveolar Voiced Velarized Pulmonic Lateral
<b>ø:</b> Open Front Rounded Vowel Long Vowel	<b>ɭ</b> Approximant
<b>c</b> Palatal Pulmonic Stop Occlusive	<b>ɛj</b> Mid Front Vowel Diphthong
<b>ø</b> Close-mid Front Rounded Vowel	<b>ɛ</b> Mid Front Vowel Diphthong
<b>ø</b> Continuant	<b>ɛ</b> Mid Front Vowel Diphthong
<b>k</b> Labial-Velar Pulmonic Stop Occlusive	<b>ɣ</b> Velar Voiced Pulmonic Fricative Obstruent
<b>aj</b> Mid Front Vowel Diphthong	<b>ɣ</b> Continuant
<b>ẽ</b> Close Back Nasal Vowel	<b>g</b> Velar Voiced Pulmonic Stop Occlusive
<b>g</b> Labial-Velar Voiced Pulmonic Stop Occlusive	<b>ŋ</b> Velar Voiced Pulmonic Nasal Occlusive
<b>ɑ</b> Open Back Vowel Continuant	<b>ẽ</b> Mid Front Nasal Vowel Diphthong
<b>ʃ</b> Palatal Voiced Pulmonic Stop Occlusive	<b>β</b> Bilabial Voiced Pulmonic Fricative Obstruent
	<b>β</b> Continuant
	<b>ẽ</b> Open-mid Near-Front Nasal Vowel

## Appendix 6 - Segment Groups

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ɬ	Alveolo-Palatal Pulmonic Sibilant Affricate	ɭ	Retroflex Vocoid Voiced Pulmonic Approximant Rhotic Liquid
ɔː	Open-mid Back Rounded Vocoid Long Vowel Continuant	ũ	Open Back Nasal Vowel
ĩ	Palatal Nasal Approximant	œ̃	Open-mid Near-Front Rounded Nasal Vowel Diphthong
a	Mid Front Vowel Diphthong	Ẃ	Labial-Velar Voiced Nasal Approximant

## Appendix 7 - Euler Feature Diagram





## Appendix 8 - International Phonetic Alphabet

### IPA Segments

ẽ	θ	β	ʈʂ
1EBD	03B8	03B2	02A7
Close Back Nasal Vowel	Dental Pulmonic Fricative Obstruent Continuant	Bilabial Voiced Pulmonic Fricative Obstruent Continuant	Palato-Alveolar Pulmonic Sibilant Affricate
ts	ɖʒ	j	ʒ
02A6	02A4	029D	0292
Alveolar Pulmonic Sibilant Affricate Occlusive Strident	Palato-Alveolar Voiced Sibilant Affricate	Palatal Voiced Pulmonic Fricative Obstruent Continuant	Post-Alveolar Voiced Pulmonic Sibilant Fricative Strident Obstruent Continuant
ʎ	ʃ	ʁ	ʀ
028E	0283	0281	0280
Palatal Vocoid Voiced Pulmonic Lateral Approximant Rhotic Liquid	Post-Alveolar Pulmonic Sibilant Fricative Strident Obstruent Continuant	Uvular Voiced Pulmonic Fricative Rhotic Strident Obstruent Continuant Liquid	Uvular Pulmonic Trill Rhotic Vibrant Liquid
ɾ	ɻ	ɲ	ɭ
027E	027B	0272	026B
Alveolar Voiced Pulmonic Tap/Flap Rhotic Vibrant Liquid	Retroflex Vocoid Voiced Pulmonic Approximant Rhotic Liquid	Palatal Voiced Pulmonic Nasal Occlusive	Alveolar Voiced Velarized Pulmonic Lateral Approximant

## Appendix 8 - International Phonetic Alphabet

<b>I</b>	<b>ɨ</b>	<b>ɥ</b>	<b>ʏ</b>
026A Near-close Near-Front Vowel	0268 Close Central Vowel	0265 Labial-Palatal Vocoid Semivowel Voiced Approximant Continuant	0263 Velar Voiced Pulmonic Fricative Obstruent Continuant
<b>ɟ</b>	<b>ɸ</b>	<b>ɛ</b>	<b>ə</b>
0261 Velar Voiced Pulmonic Stop Occlusive	025F Palatal Voiced Pulmonic Stop Occlusive	025B Open-mid Near-Front Vocoid Vowel Continuant	0259 Close-mid Central Vowel
<b>ɔ</b>	<b>ɒ</b>	<b>ɑ</b>	<b>æ</b>
0254 Open-mid Back Rounded Vocoid Vowel Continuant	0252 Open Back Rounded Vocoid Vowel Continuant	0251 Open Back Vocoid Vowel Continuant	0250 Near-open Central Rounded Vowel
<b>ũ</b>	<b>œ</b>	<b>ŋ</b>	<b>ĩ</b>
0169 Open Back Nasal Vowel	0153 Open-mid Near-Front Rounded Vocoid Vowel Continuant	014B Velar Voiced Pulmonic Nasal Occlusive	0129 Close Front Nasal Vowel
<b>ø</b>	<b>õ</b>	<b>ð</b>	<b>ã</b>
00F8 Close-mid Front Rounded Vocoid Vowel Continuant	00F5 Close-mid Back Rounded Nasal Vowel	00F0 Dental Voiced Pulmonic Fricative Obstruent Continuant	00E3 Near-open Central Nasal Vowel

## Appendix 8 - International Phonetic Alphabet

<b>z</b>	<b>y</b>	<b>x</b>	<b>w</b>
007A	0079	0078	0077
Alveolar Voiced Pulmonic Sibilant Fricative Strident Obstruent Continuant	Close Front Rounded Vocoid Vowel Continuant	Velar Pulmonic Fricative Obstruent Continuant	Labial-Velar Vocoid Semivowel Voiced Approximant Continuant
<b>v</b>	<b>u</b>	<b>t</b>	<b>s</b>
0076	0075	0074	0073
Labio-Dental Voiced Pulmonic Fricative Strident Obstruent Continuant	Close Back Rounded Vocoid Vowel Continuant	Alveolar Pulmonic Stop Occlusive	Alveolar Pulmonic Sibilant Fricative Strident Obstruent Continuant
<b>r</b>	<b>p</b>	<b>o</b>	<b>n</b>
0072	0070	006F	006E
Alveolar Voiced Pulmonic Trill Rhotic Vibrant Liquid	Bilabial Pulmonic Stop Occlusive	Close-mid Back Rounded Vocoid Vowel Continuant	Alveolar Voiced Pulmonic Nasal Occlusive
<b>m</b>	<b>l</b>	<b>k</b>	<b>j</b>
006D	006C	006B	006A
Bilabial Voiced Pulmonic Nasal Occlusive	Alveolar Vocoid Voiced Pulmonic Lateral Approximant Rhotic Liquid	Velar Pulmonic Stop Occlusive	Palatal Vocoid Semivowel Voiced Pulmonic Approximant Continuant

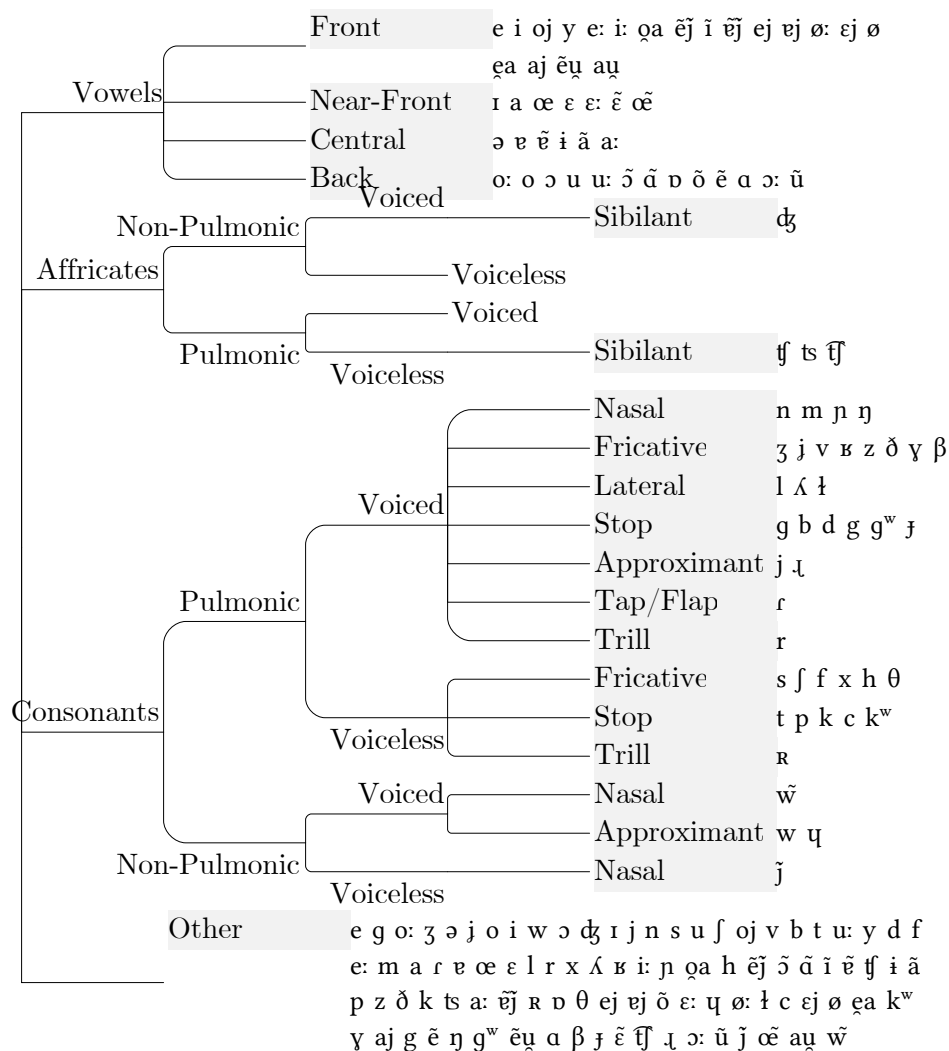
## Appendix 8 - International Phonetic Alphabet

<b>i</b>	<b>h</b>	<b>g</b>	<b>f</b>
0069 Close Front Vocoid Vowel Continuant	0068 Glottal Pulmonic Fricative	0067 Velar Voiced Pulmonic Stop Occlusive	0066 Labio-Dental Pulmonic Fricative Strident Obstruent Continuant
<b>e</b>	<b>d</b>	<b>c</b>	<b>b</b>
0065 Close-mid Front Vocoid Vowel Continuant	0064 Alveolar Voiced Pulmonic Stop Occlusive	0063 Palatal Pulmonic Stop Occlusive	0062 Bilabial Voiced Pulmonic Stop Occlusive
<b>a</b>	<b>g<sup>w</sup></b>	<b>ẽ</b>	<b>ɛː</b>
0061 Open Near-Front Vocoid Vowel Continuant	0261, 02B7 Labial-Velar Voiced Pulmonic Stop Occlusive	025B, 0303 Open-mid Near-Front Nasal Vowel	025B, 02D0 Open-mid Near-Front Vocoid Long Vowel Continuant
<b>ɛj</b>	<b>õ</b>	<b>ɔː</b>	<b>ã</b>
025B, 006A Mid Front Vowel Diphthong	0254, 0303 Open-mid Back Rounded Nasal Vowel	0254, 02D0 Open-mid Back Rounded Vocoid Long Vowel Continuant	0251, 0303 Near-close Back Nasal Vowel
<b>ẽ</b>	<b>ɐj</b>	<b>œ̃</b>	<b>øː</b>
0250, 0303 Near-open Central Rounded Nasal Vowel	0250, 006A Mid Front Vowel Diphthong	0153, 0303 Open-mid Near-Front Rounded Nasal Vowel Diphthong	00F8, 02D0 Open Front Rounded Vocoid Long Vowel

## Appendix 8 - International Phonetic Alphabet

<p style="text-align: center; font-size: 2em;">w̃</p> <p style="text-align: center;">0077, 0303</p> <p style="text-align: center;">Labial-Velar Voiced Nasal Approximant</p>	<p style="text-align: center; font-size: 2em;">uː</p> <p style="text-align: center;">0075, 02D0</p> <p style="text-align: center;">Close Back Rounded Long Vowel</p>	<p style="text-align: center; font-size: 2em;">oː</p> <p style="text-align: center;">006F, 02D0</p> <p style="text-align: center;">Mid Back Rounded Vocoid Long Vowel Continuant</p>	<p style="text-align: center; font-size: 2em;">oj</p> <p style="text-align: center;">006F, 006A</p> <p style="text-align: center;">Mid Front Vowel Diphthong</p>
<p style="text-align: center; font-size: 2em;">k<sup>w</sup></p> <p style="text-align: center;">006B, 02B7</p> <p style="text-align: center;">Labial-Velar Pulmonic Stop Occlusive</p>	<p style="text-align: center; font-size: 2em;">j̃</p> <p style="text-align: center;">006A, 0303</p> <p style="text-align: center;">Palatal Nasal Approximant</p>	<p style="text-align: center; font-size: 2em;">iː</p> <p style="text-align: center;">0069, 02D0</p> <p style="text-align: center;">Close Front Vocoid Long Vowel Continuant</p>	<p style="text-align: center; font-size: 2em;">eː</p> <p style="text-align: center;">0065, 02D0</p> <p style="text-align: center;">Mid Front Vocoid Long Vowel Continuant</p>
<p style="text-align: center; font-size: 2em;">ej</p> <p style="text-align: center;">0065, 006A</p> <p style="text-align: center;">Mid Front Vowel Diphthong</p>	<p style="text-align: center; font-size: 2em;">aː</p> <p style="text-align: center;">0061, 02D0</p> <p style="text-align: center;">Open Central Vocoid Long Vowel Continuant</p>	<p style="text-align: center; font-size: 2em;">aj</p> <p style="text-align: center;">0061, 006A</p> <p style="text-align: center;">Mid Front Vowel Diphthong</p>	<p style="text-align: center; font-size: 2em;">ẽụ</p> <p style="text-align: center;">1EBD, 0075, 032F</p> <p style="text-align: center;">Mid Front Nasal Vowel Diphthong</p>
<p style="text-align: center; font-size: 2em;">ẽj̃</p> <p style="text-align: center;">1EBD, 006A, 0303</p> <p style="text-align: center;">Mid Front Nasal Vowel Diphthong</p>	<p style="text-align: center; font-size: 2em;">tʃ̃</p> <p style="text-align: center;">0074, 0361, 0283</p> <p style="text-align: center;">Alveolo-Palatal Pulmonic Sibilant Affricate</p>	<p style="text-align: center; font-size: 2em;">ọa</p> <p style="text-align: center;">006F, 032F, 0061</p> <p style="text-align: center;">Mid Front Vowel Diphthong</p>	<p style="text-align: center; font-size: 2em;">ẹa</p> <p style="text-align: center;">0065, 032F, 0061</p> <p style="text-align: center;">Mid Front Vowel Diphthong</p>
<p style="text-align: center; font-size: 2em;">aụ</p> <p style="text-align: center;">0061, 0075, 032F</p> <p style="text-align: center;">Mid Front Vowel Diphthong</p>	<p style="text-align: center; font-size: 2em;">ẽj̃</p> <p style="text-align: center;">0250, 0303, 006A, 0303</p> <p style="text-align: center;">Mid Front Nasal Vowel Diphthong</p>		

## Appendix 9 - Feature Tree



## Appendix 10 - Diacritics

### Diacritics

	Undefined escape character	~	Nasalized	˙	Centralized
+	Advanced	-	Retracted	ˆ	RisingTone
◦	Voiceless		Implosive	˙	Syllabic
ˈ	Ejective	ʕ	Pharyngealized	ˆ	Falling tone
˘	Non-syllabic	˘	No audible release	˘	Rhotic hook
˘	Advanced tongue root	˘	Apical	˘	Extra low tone
˘	Low rising tone	˘	Less rounded	˘	Dental
˘	Velarized or Pharyngealized	↘	Global fall	˘	Velarized
˘	High tone	˘	High rising tone	h	Aspirated
j	Palatalized	˘	Creaky voiced	˘	Low tone
l	Lateral release	˘	Mid tone	◻	Laminal
˘	Linguo-Labial	n	Nasal release	˘	More rounded
˘	Lowered	˘	Retracted tongue root	↗	Global rise
˘	Rising falling tone	˘	Raised	˘	Extra high tone
˙	Breathy voiced	˘	Voiced	w	Labialized
˘	Extra short	˘	Mid-centralized	↓	Down-step
↑	Up-step	˘	Long	˘	Half-long
	Indeterminacy in french vowels		Begin Non-segmental notation		End non-segmental notation
ʕ	Voiced epiglottal fricative	!	Post-alveolar click		Minor group
	Dental click		Major group		Alveolar lateral click
‡	Palatal click	◦	Voiceless descender	-	Combining macron
˘	Tie-bar below	˘	Tie-bar above	‡	Ready made combination
→	Becomes		Separator		

## Appendix 11 - Languages

### LATIN

A classical language belonging to the Italic branch of the Indo-European languages. Latin was originally spoken in the area around Rome, known as Latium. Through the power of the Roman Republic, it became the dominant language in Italy, and subsequently throughout the western Roman Empire, before eventually becoming a dead language. Latin has contributed many words to the English language. In particular, Latin (and Ancient Greek) roots are used in English descriptions of theology, the sciences, medicine, and law.

By the late Roman Republic (75 BC), Old Latin had been standardised into Classical Latin. Vulgar Latin was the colloquial form spoken at that time and attested in inscriptions and the works of comic playwrights like Plautus and Terence[3] and author Petronius. Late Latin is the written language from the 3rd century; its colloquial form Vulgar Latin developed in the 6th to 9th centuries into the Romance languages, such as Italian, Sardinian, Venetian, Neapolitan, Sicilian, Piedmontese, Lombard, French, Franco-Provençal, Occitan, Corsican, Ladin, Friulan, Romansh, Catalan/Valencian, Aragonese, Spanish, Asturian, Galician, and Portuguese. Medieval Latin was used as a literary language from the 9th century to the Renaissance which used Renaissance Latin. Later, Early Modern Latin and New Latin evolved. Latin was the language of international communication, scholarship and science until well into the 18th century, when vernaculars (including the Romance languages) supplanted it. Ecclesiastical Latin remains the official language of the Holy See and the Roman Rite of the Catholic Church. Latin is a highly inflected language, with three distinct genders, six or seven noun cases, five declensions, four verb conjugations, six tenses, three persons, three moods, two voices, two or three aspects, and two numbers. The Latin alphabet is derived from the Etruscan and Greek alphabets and ultimately from the Phoenician alphabet.



### FRENCH

A Romance language of the Indo-European family. It descended from the Vulgar Latin of the Roman



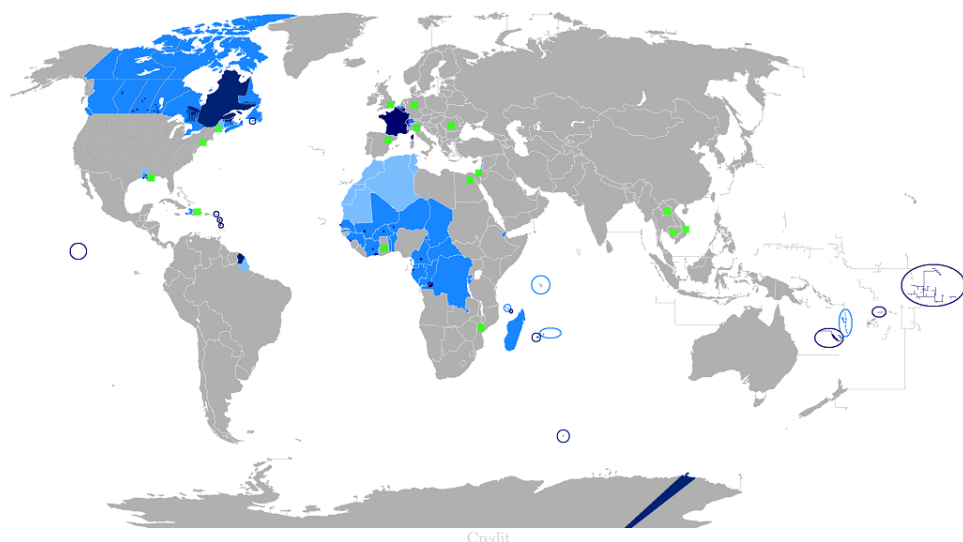
## Appendix 11 - Languages

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Empire, as did all Romance languages. French evolved from Gallo-Romance, the Latin spoken in Gaul, and more specifically in Northern Gaul. Its closest relatives are the other langues d'oïl—languages historically spoken in northern France and in southern Belgium, which French (Francien) largely supplanted.

French was also influenced by native Celtic languages of Northern Roman Gaul like Gallia Belgica and by the (Germanic) Frankish language of the post-Roman Frankish invaders. Today, owing to France's past overseas expansion, there are numerous French-based creole languages, most notably Haitian Creole. A French-speaking person or nation may be referred to as Francophone in both English and French.

French is an official language in 29 countries across multiple continents, most of which are members of the Organisation internationale de la Francophonie (OIF), the community of 84 countries which share the official use or teaching of French. French is also one of six official languages used in the United Nations. It is spoken as a first language (in descending order of the number of speakers) in France; the Democratic Republic of Congo; Algeria; Morocco; Canada (provinces of Quebec, Ontario and New Brunswick as well as other Francophone regions); Cameroon; Belgium (Wallonia and the Brussels-Capital Region); Ivory Coast; Tunisia; western Switzerland (Romandy—all or part of the cantons of Bern, Fribourg, Geneva, Jura, Neuchâtel, Vaud, Valais); Monaco; parts of Luxembourg; parts of the United States (the states of Louisiana, Maine, New Hampshire and Vermont); northwestern Italy (autonomous region of Aosta Valley); and various communities elsewhere.

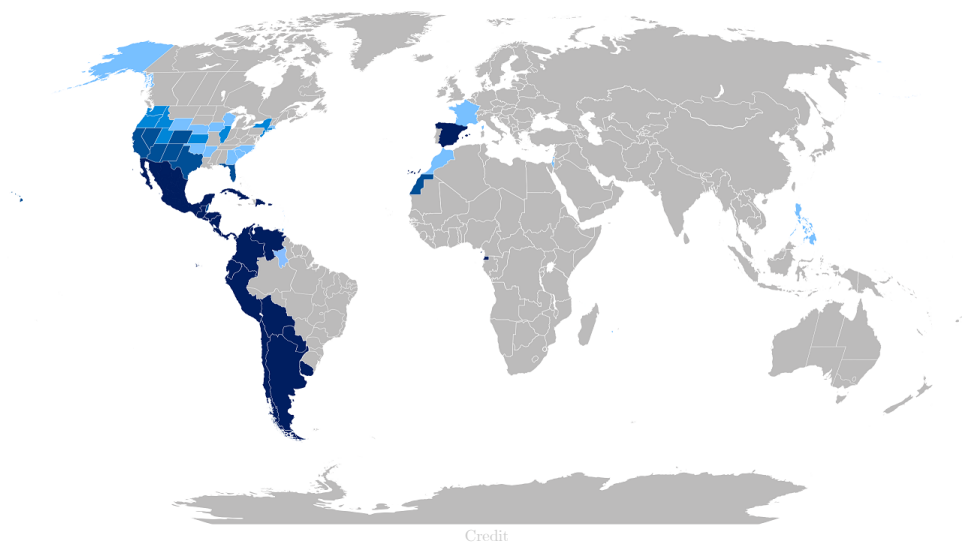


### SPANISH

A Romance language that originated in the Iberian Peninsula of Europe. Today, it is a global language with nearly 500 million native speakers, mainly in Spain and the Americas. It is the world's second-most spoken native language after Mandarin Chinese, and the world's fourth-most spoken language overall after English, Mandarin Chinese, and Hindi.

## Appendix 11 - Languages

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### ITALIAN

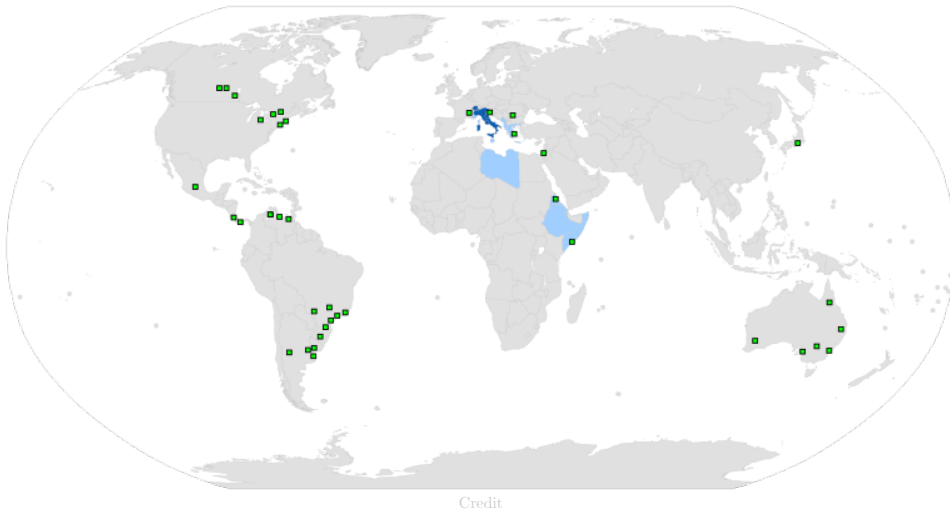
A Romance language of the Indo-European language family. Italian is the closest national language to Latin, from which it descends via vulgar Latin of the Roman Empire. Taking into account both national and regional languages, it is seen that Italian and Sardinian are together the least differentiated from Latin. Italian is an official language in Italy, Switzerland (Ticino and the Grisons), San Marino, and Vatican City. It has an official minority status in western Istria (Croatia and Slovenia).

It formerly had official status in Albania, Malta, Monaco, Montenegro (Kotor), Greece (Ionian Islands and Dodecanese), and is generally understood in Corsica by Corsican speakers (many linguists classify Corsican as an Italian dialect). It used to be an official language in the former colonial areas of Italian East Africa and Italian North Africa, where it still has a significant role in various sectors.

Italian is also spoken by large immigrant and expatriate communities in the Americas and Australia. Italian is included under the languages covered by the European Charter for Regional or Minority languages in Bosnia and Herzegovina and in Romania, although Italian is neither a co-official nor a protected language in these countries. Many speakers of Italian are native bilinguals of both Italian (either in its standard form or regional varieties) and another regional language of Italy.

## Appendix 11 - Languages

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### BRAZILIAN PORTUGUESE

The set of dialects of the Portuguese language native to Brazil and the most influential form of Portuguese worldwide. It is spoken by almost all of the 200 million inhabitants of Brazil and spoken widely across the Brazilian diaspora, today consisting of about two million Brazilians who have emigrated to other countries. With a population of over 205 million, Brazil is by far the world's largest Portuguese-speaking nation and the only one in the Americas.



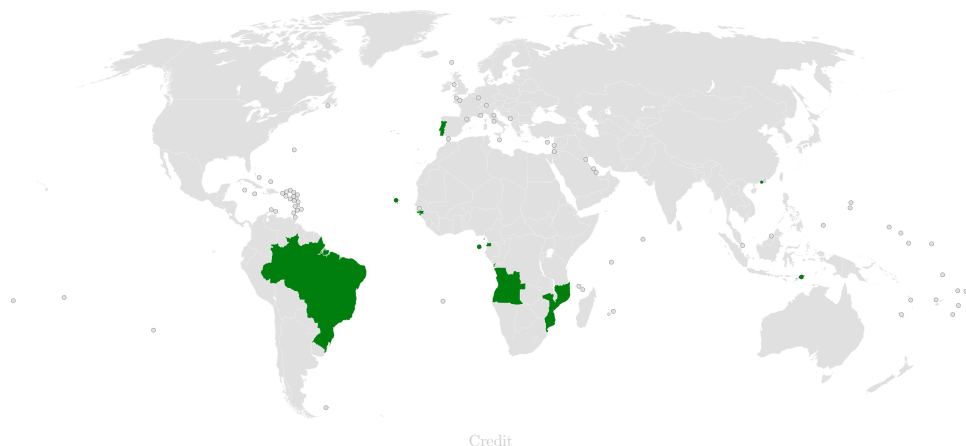
### PORTUGUESE

A Romance language originating in the Iberian Peninsula of Europe. It is the sole official language of Portugal, Angola, Mozambique, Guinea-Bissau, Cape Verde, São Tomé and Príncipe, and Brazil, while having co-official language status in East Timor, Equatorial Guinea, and Macau. A Portuguese-speaking

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person or nation is referred to as "Lusophone" (lusófono). As the result of expansion during colonial times, a cultural presence of Portuguese and Portuguese creole speakers are also found around the world. Portuguese is part of the Ibero-Romance group that evolved from several dialects of Vulgar Latin in the medieval Kingdom of Galicia and the County of Portugal, and has kept some Celtic phonology and its lexicon.



### CATALAN

Catalan (/ˈkætələn, -æn, ˌkætəˈlæn/; autonym: *català* or *llengua catalana*; Eastern Catalan: [kətəˈla]), known in the Valencian Community and Carche as Valencian, is a Western Romance language derived from Vulgar Latin. It is the official language of Andorra, and a co-official language of three autonomous communities in eastern Spain: Catalonia, the Valencian Community and the Balearic Islands. It also has semi-official status in the Italian comune of Alghero. It is also spoken in the Pyrénées-Orientales department of France and in two further areas in eastern Spain: the eastern strip of Aragon and the Carche area in the Region of Murcia. The Catalan-speaking territories are often called the *Països Catalans* or "Catalan Countries".

The language evolved from Vulgar Latin in the Middle Ages around the eastern Pyrenees. Nineteenth-century Spain saw a Catalan literary revival, culminating in the early 1900s.

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### WALLOON

A Romance language that is spoken in much of Wallonia and (to small extent) in Brussels, Belgium; some villages near Givet, northern France; a clutch of communities in northeastern Wisconsin, U.S.; and in some parts of Canada. It belongs to the langue d'oïl language family, the most prominent member of which is the French language. The historical background of its formation was the territorial extension since 980 of the Principality of Liège to the south and west.

Despite its rich literature, beginning anonymously in the 16th century and with well-known authors since 1756, the use of Walloon has decreased markedly since France's annexation of Wallonia in 1795. This period definitively established French as the language of social promotion, far more than it was before. After World War I, public schools provided French-speaking education to all children, inducing a denigration of Walloon, especially when accompanied by official orders in 1952 to punish its use in schools. Subsequently, since the middle of the 20th century, generational transmission of the language has decreased, resulting in Walloon almost becoming a dead language. Today it is scarcely spoken among younger people, with vast majority of its native speakers being the elderly (aged 65 and over). In 2007, the number of people with knowledge of the language was estimated at 600,000.

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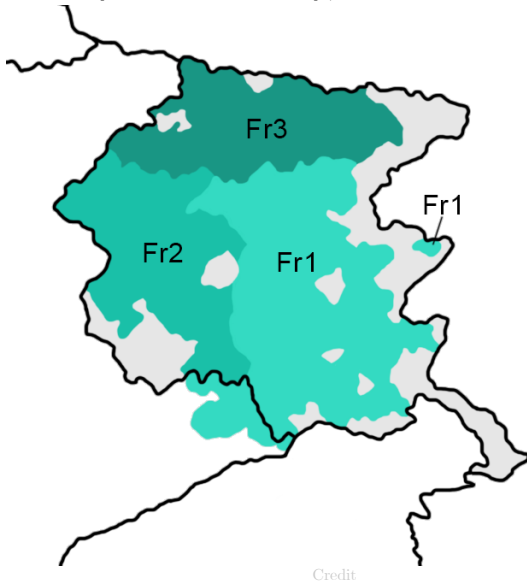
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### FRIULIAN

Friulian (/friˈuːliən/ free-OO-lee-ən) or Friulan (natively About this soundfurlan or marilenghe; Italian: friulano; German: Furlanisch; Slovene: furlanščina) is a Romance language belonging to the Rhaeto-Romance family, spoken in the Friuli region of northeastern Italy. Friulian has around 600,000 speakers, the vast majority of whom also speak Italian.

It is sometimes called Eastern Ladin since it shares the same roots as Ladin, but over the centuries, it has diverged under the influence of surrounding languages, including German, Italian, Venetian, and Slovene. Documents in Friulian are attested from the 11th century and poetry and literature date as far back as 1300. By the 20th century, there was a revival of interest in the language.



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### ROMANIAN

Romanian (obsolete spellings: Rumanian or Roumanian; autonym: *limba română* ['limba ro'minə] (About this soundlisten), or *românește*, lit. 'in Romanian') is a Balkan Romance language spoken by approximately 24–26 million people as a native language, primarily in Romania and Moldova, and by another 4 million people as a second language. According to another estimate, there are about 34 million people worldwide who can speak Romanian, of whom 30 million speak it as a native language. It is an official and national language of both Romania and Moldova and is one of the official languages of the European Union.

Romanian is a part of the Eastern Romance sub-branch of Romance languages, a linguistic group that evolved from several dialects of Vulgar Latin which separated from the Western Romance languages in the course of the period from the 5th to the 8th centuries. To distinguish it within the Eastern Romance languages, in comparative linguistics it is called Daco-Romanian as opposed to its closest relatives, Aromanian, Megleno-Romanian and Istro-Romanian. Romanian is also known as Moldovan in Moldova, although the Constitutional Court of Moldova ruled in 2013 that "the official language of the republic is Romanian".



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