



## Appendix 2 - Tongue Twister Configuration

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```
{
  "Tree": "(Latin,(Romanian,(((Walloon,French),(((Portuguese,PortugueseBrazil),Spanish),Catalan)),
(Friulian,Italian))))";
  "NumberOfStates": 89,
  "Taxa": ["Latin", "French", "Spanish", "Italian", "PortugueseBrazil", "Portuguese", "Catalan",
"Walloon", "Friulian", "Romanian"],
  "PriorFrequencies": [0.027854,0.026027,0.009589,0.007306,0.010046,0.000913,0.027397,0.042009,0.037443
,0.015982,0.000457,0.006849,0.041096,0.035616,0.030594,0.040183,0.016895,0.000457,0.012329,0.028767
,0.031050,0.013242,0.002740,0.021005,0.020091,0.009589,0.043836,0.039269,0.011872,0.000913,0.001370
,0.016895,0.031050,0.020091,0.008676,0.002283,0.002283,0.014612,0.019178,0.000457,0.025571,0.000457
,0.003653,0.005023,0.000913,0.008219,0.000457,0.000457,0.007306,0.007763,0.039269,0.013699,0.002283
,0.041096,0.000457,0.013699,0.000457,0.000457,0.000913,0.001826,0.000457,0.000457,0.005023,0.005023
,0.000913,0.000913,0.000457,0.006393,0.000457,0.001370,0.000457,0.005479,0.006393,0.000457,0.000457
,0.028767,0.002740,0.000457,0.003196,0.004566,0.005479,0.003653,0.004566,0.007306,0.000457,0.000457
,0.000457,0.000457,0.000457],
  "PartitionSets": [{"Name": "Nasal Vowel", "Set": [41, 42, 43, 44, 45, 46, 49, 56, 62, 77, 81, 83,
85]}, {"Name": "Vowel", "Set": [0, 2, 4, 6, 7, 9, 11, 15, 17, 21, 22, 25, 27, 29, 30, 31, 37, 39, 48,
55, 58, 60, 61, 63, 65, 68, 69, 70, 73, 78, 82, 86]}, {"Name": "Nasal Consonant", "Set": [13, 26, 38,
75, 84, 88]}, {"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, 47, 50, 51, 52, 53, 54, 57, 59, 64, 66,
67, 71, 72, 74, 76, 79, 80, 87]}],
  "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": "ManHumanBeing-Secondary", "Data": [
    {"Taxon": "Latin", "Segments": [40, 6, 26, 7, 13, 43]},
    {"Taxon": "French", "Segments": [6, 26, -1, -1, -1, -1]}
  ]
},
{
  "Name": "Child", "Data": [
    {"Taxon": "Latin", "Segments": [7, 13, 24, 27, 13, 20, 0, 26]},
    {"Taxon": "French", "Segments": [44, -1, 24, 44, -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": [45, -1, 24, 46, -1, 47, 7, -1]},
    {"Taxon": "Portuguese", "Segments": [45, -1, 24, 46, -1, 20, 48, -1]},
    {"Taxon": "Walloon", "Segments": [31, -1, 24, 49, -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, 50, 6, 13, 14, 27]},
    {"Taxon": "French", "Segments": [0, -1, 50, 15, -1, 51, -1]},
    {"Taxon": "Spanish", "Segments": [0, 14, 50, 6, -1, 14, 27]},
    {"Taxon": "Italian", "Segments": [-1, 14, 50, 9, -1, 51, 27]},
    {"Taxon": "PortugueseBrazil", "Segments": [7, 14, 50, 6, -1, 51, 27]},
    {"Taxon": "Portuguese", "Segments": [48, 16, 50, 6, -1, 51, 29]},
    {"Taxon": "Catalan", "Segments": [4, 14, 50, 9, -1, 51, 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]},
  ]
}
```

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```
{
  "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]}
}],
{"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, 52, 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, 52, 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, 50, 6, 13, 14, 15, 14]},
  {"Taxon": "French", "Segments": [0, -1, 50, 15, -1, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [0, 14, 50, 6, -1, 14, 6, -1]},
  {"Taxon": "Italian", "Segments": [-1, 14, 50, 9, -1, 51, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [7, 14, 50, 6, -1, 51, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [48, 16, 50, 6, -1, 51, 15, -1]},
  {"Taxon": "Catalan", "Segments": [4, 14, 50, 9, -1, 14, -1, -1]},
  {"Taxon": "Friulian", "Segments": [-1, 14, 50, 2, -1, 14, -1, -1]}
}],
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  {"Taxon": "Italian", "Segments": [14, 9, 47, -1, 6, -1]},
  {"Taxon": "Romanian", "Segments": [14, 6, 54, -1, -1, -1]}
}],
{"Name": "Mother", "Data": [
  {"Taxon": "Latin", "Segments": [26, 55, 20, 33, 0, 26]},
  {"Taxon": "French", "Segments": [26, 0, -1, 36, -1, -1]},
  {"Taxon": "Spanish", "Segments": [26, 27, 52, 28, 0, -1]},
  {"Taxon": "Italian", "Segments": [26, 55, 23, 33, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [26, 56, -1, -1, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [26, 56, -1, -1, -1, -1]},
  {"Taxon": "Catalan", "Segments": [26, 27, -1, 28, 4, -1]},
  {"Taxon": "Walloon", "Segments": [26, 0, -1, 57, -1, -1]},
  {"Taxon": "Friulian", "Segments": [26, 58, -1, 33, 7, -1]}
}],
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  {"Taxon": "Latin", "Segments": [50, 7, 14, 53, 0, 26]},
  {"Taxon": "Spanish", "Segments": [50, 0, 59, -1, -1, -1]},
  {"Taxon": "Italian", "Segments": [50, 0, 16, 16, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [50, 60, 16, -1, 7, -1]},
  {"Taxon": "Portuguese", "Segments": [50, 61, 16, -1, 48, -1]},
  {"Taxon": "Catalan", "Segments": [50, 0, 16, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [50, 31, 14, -1, -1, -1]},
  {"Taxon": "Romanian", "Segments": [50, 0, 16, 20, 0, -1]}
}],
{"Name": "Fish-Pescion", "Data": [
```

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```
{
  "Taxon": "French", "Segments": [50, 8, 27, 14, 62]},
  {"Taxon": "Walloon", "Segments": [50, -1, 31, 40, 62]}
]},
{"Name": "Bird-Avem", "Data": [
  {"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, 48, -1]},
  {"Taxon": "Catalan", "Segments": [27, 8, -1, -1]}
]},
{"Name": "Bird-Avicellum", "Data": [
  {"Taxon": "Latin", "Segments": [-1, 27, 8, 7, -1, 53, -1, 0, 32, 32, 15, 26]},
  {"Taxon": "French", "Segments": [8, 27, -1, -1, -1, 51, -1, 6, -1, -1, -1, -1]},
  {"Taxon": "Italian", "Segments": [-1, -1, 15, -1, 20, 47, -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, 63, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [-1, -1, 15, -1, -1, 47, 12, 31, -1, 32, -1, -1]}
]},
{"Name": "Bird-Passerem", "Data": [
  {"Taxon": "Latin", "Segments": [50, 27, 14, 14, 0, 33, 0, 26]},
  {"Taxon": "Spanish", "Segments": [50, 27, -1, 34, 27, 28, 6, -1]},
  {"Taxon": "Italian", "Segments": [50, 27, 14, 14, 0, 33, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [50, 27, -1, 14, 29, 28, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [50, 27, -1, 14, 29, 28, 15, -1]},
  {"Taxon": "Romanian", "Segments": [50, 27, -1, 14, 4, 28, 0, -1]}
]},
{"Name": "Fruit", "Data": [
  {"Taxon": "Latin", "Segments": [24, 33, 21, -1, 53, 20, 15, 14]},
  {"Taxon": "French", "Segments": [24, 36, 64, 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, 57, 22, -1, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [24, 33, 15, -1, -1, 20, -1, -1]},
  {"Taxon": "Romanian", "Segments": [24, 33, 15, -1, 53, 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, 65, 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, 55, 14, 15, 14]},
  {"Taxon": "French", "Segments": [13, 0, -1, -1, -1]}
]}
```

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```
{
  "Taxon": "Spanish", "Segments": [13, 27, 14, 6, -1]},
  {"Taxon": "Italian", "Segments": [13, 55, 14, 6, -1]},
  {"Taxon": "Catalan", "Segments": [13, 27, 14, -1, -1]},
  {"Taxon": "Walloon", "Segments": [13, 0, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [13, 55, 14, -1, -1]},
  {"Taxon": "Romanian", "Segments": [13, 27, 14, -1, -1]}
}],
{"Name": "Nose-Nares", "Data": [
  {"Taxon": "Spanish", "Segments": [13, 27, 28, 7, 59, -1]},
  {"Taxon": "Italian", "Segments": [13, 27, 33, 7, 47, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [13, 27, 28, 7, 14, -1]},
  {"Taxon": "Portuguese", "Segments": [13, 29, 28, 7, 16, -1]},
  {"Taxon": "Catalan", "Segments": [13, 55, 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, 66, -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, 67, 15, 32, 15, 14]},
  {"Taxon": "French", "Segments": [14, 9, 32, 68, -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, 69, 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": [48, 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, 65, -1, 32, -1]},
  {"Taxon": "Friulian", "Segments": [-1, 14, 20, -1, 31, -1, 32, 0]},
  {"Taxon": "Romanian", "Segments": [-1, 14, 20, -1, 70, -1, -1, -1]}
]}
```

## Appendix 2 - Tongue Twister Configuration

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```
{
  "Name": "Water", "Data": [
    {"Taxon": "Latin", "Segments": [27, -1, 71, -1, 27]},
    {"Taxon": "French", "Segments": [6, -1, -1, -1, -1]},
    {"Taxon": "Spanish", "Segments": [27, -1, 72, 8, 27]},
    {"Taxon": "Italian", "Segments": [27, 53, 53, 8, 27]},
    {"Taxon": "PortugueseBrazil", "Segments": [27, -1, 1, 8, 29]},
    {"Taxon": "Portuguese", "Segments": [27, -1, 1, 8, 29]},
    {"Taxon": "Catalan", "Segments": [73, -1, 72, 8, 4]},
    {"Taxon": "Walloon", "Segments": [63, -1, -1, 8, -1]},
    {"Taxon": "Friulian", "Segments": [27, -1, 74, -1, 0]},
    {"Taxon": "Romanian", "Segments": [27, -1, 50, -1, 4]}
  ],
  "Name": "Rain", "Data": [
    {"Taxon": "Latin", "Segments": [50, 32, 15, -1, 8, 7, 27]},
    {"Taxon": "French", "Segments": [50, 32, 64, -1, -1, 7, -1]},
    {"Taxon": "Spanish", "Segments": [5, -1, 15, -1, 19, 12, 27]},
    {"Taxon": "Italian", "Segments": [50, 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": [50, 32, 15, -1, 3, -1, 4]},
    {"Taxon": "Walloon", "Segments": [50, 32, 21, -1, 36, -1, -1]},
    {"Taxon": "Friulian", "Segments": [50, 32, 6, -1, -1, 12, 0]},
    {"Taxon": "Romanian", "Segments": [50, 32, 39, -1, -1, 12, 0]}
  ],
  "Name": "Lake", "Data": [
    {"Taxon": "Latin", "Segments": [32, 27, 53, 15, 26]},
    {"Taxon": "French", "Segments": [32, 27, 53, -1, -1]},
    {"Taxon": "Spanish", "Segments": [32, 27, 74, 6, -1]},
    {"Taxon": "Italian", "Segments": [32, 27, 1, 6, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [32, 27, 1, 15, -1]},
    {"Taxon": "Portuguese", "Segments": [32, 27, 72, 15, -1]},
    {"Taxon": "Catalan", "Segments": [35, 27, 53, -1, -1]},
    {"Taxon": "Walloon", "Segments": [32, 27, 53, -1, -1]},
    {"Taxon": "Friulian", "Segments": [32, 55, 20, -1, -1]},
    {"Taxon": "Romanian", "Segments": [32, 27, 53, -1, -1]}
  ],
  "Name": "Sea", "Data": [
    {"Taxon": "Latin", "Segments": [26, 27, 33, 0]},
    {"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, 55, 33, -1]},
    {"Taxon": "Romanian", "Segments": [26, 27, 33, 0]}
  ],
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    {"Taxon": "Latin", "Segments": [14, 55, 32, 0, 26]},
    {"Taxon": "French", "Segments": [14, 31, 32, -1, -1]},
    {"Taxon": "Spanish", "Segments": [14, 27, 32, -1, -1]},
    {"Taxon": "Italian", "Segments": [14, 27, 32, 0, -1]},
  ]
}
```



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```
{
  "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]},
  {"Taxon": "Friulian", "Segments": [14, 55, 32, -1, -1]},
  {"Taxon": "Romanian", "Segments": [14, 27, 33, 0, -1]}
]},
{"Name": "Earth", "Data": [
  {"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, 63, -1, 36, -1]},
  {"Taxon": "Friulian", "Segments": [20, 12, 31, -1, 33, 0]},
  {"Taxon": "Romanian", "Segments": [54, -1, 27, -1, 33, 4]}
]},
{"Name": "Fog", "Data": [
  {"Taxon": "Latin", "Segments": [53, 55, 32, 37, 1, 7, 13, 0, 26]},
  {"Taxon": "Spanish", "Segments": [53, 27, 32, 7, -1, -1, 13, 27, -1]},
  {"Taxon": "Italian", "Segments": [53, 27, 32, 7, 10, 7, 13, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [53, 27, 32, 7, 3, 41, -1, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [53, 29, 32, 7, 3, 56, -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, -1, 25, 19, 33, 73]},
  {"Taxon": "Italian", "Segments": [20, 63, 13, -1, 0, 19, 33, 0]}
]},
{"Name": "Fog-Tenebras", "Data": [
  {"Taxon": "Latin", "Segments": [20, -1, 0, 13, -1, 25, 19, 33, 55, 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, 63, 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": [
  {"Taxon": "Latin", "Segments": [24, 21, 26, 55, 20, 27]},
  {"Taxon": "French", "Segments": [24, 22, 26, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [24, 15, 26, 27, 20, 27]},
  {"Taxon": "Italian", "Segments": [24, 15, 26, 55, 20, 27]},
```

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```
{
  "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]}
}],
{"Name": "Fog-Caecia", "Data": [
  {"Taxon": "Latin", "Segments": [53, 73, 53, 7, 27]},
  {"Taxon": "Romanian", "Segments": [47, 70, 47, -1, 4]}
]},
{"Name": "Sky", "Data": [
  {"Taxon": "Latin", "Segments": [53, -1, 73, 32, 15, 26]},
  {"Taxon": "French", "Segments": [14, 12, 31, 32, -1, -1]},
  {"Taxon": "Spanish", "Segments": [59, 12, 0, 32, 6, -1]},
  {"Taxon": "Italian", "Segments": [47, -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": [47, -1, 37, 32, -1, -1]},
  {"Taxon": "Romanian", "Segments": [47, -1, 0, 28, -1, -1]}
]},
{"Name": "Wind", "Data": [
  {"Taxon": "Latin", "Segments": [8, -1, 0, 13, 20, 15, 26]},
  {"Taxon": "French", "Segments": [18, -1, 44, -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, 43, -1, 20, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [18, -1, 43, -1, 20, 15, -1]},
  {"Taxon": "Catalan", "Segments": [19, -1, 0, 13, -1, -1, -1]},
  {"Taxon": "Walloon", "Segments": [18, -1, 43, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [18, -1, 7, 13, 20, -1, -1]},
  {"Taxon": "Romanian", "Segments": [18, -1, 48, 13, 20, -1, -1]}
]},
{"Name": "Fire-Focus", "Data": [
  {"Taxon": "Latin", "Segments": [24, -1, 6, 53, 15, 26]},
  {"Taxon": "French", "Segments": [24, -1, 69, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [24, 8, 0, 1, 6, -1]},
  {"Taxon": "Italian", "Segments": [24, 8, 9, 53, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [24, -1, 6, 1, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [24, -1, 6, 72, 15, -1]},
  {"Taxon": "Catalan", "Segments": [24, -1, 9, 53, -1, -1]},
  {"Taxon": "Walloon", "Segments": [24, -1, 65, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [24, -1, 21, 53, -1, -1]},
  {"Taxon": "Romanian", "Segments": [24, -1, 6, 53, -1, -1]}
]},
{"Name": "Year", "Data": [
  {"Taxon": "Latin", "Segments": [27, 13, 13, 15, 26]},
  {"Taxon": "French", "Segments": [44, -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": [49, -1, -1, -1, -1]}
```

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```
{
  "Taxon": "Friulian", "Segments": [27, -1, 75, -1, -1]},
  {"Taxon": "Romanian", "Segments": [27, 13, -1, -1, -1]}
]},
{"Name": "Name-Nomen", "Data": [
  {"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, 48, -1]},
  {"Taxon": "Catalan", "Segments": [13, 9, 26, -1, -1]},
  {"Taxon": "Walloon", "Segments": [13, 62, -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": [
  {"Taxon": "Latin", "Segments": [32, 7, 13, 76, -1, 27]},
  {"Taxon": "French", "Segments": [32, 44, -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, 45, -1, 1, 8, 29]},
  {"Taxon": "Portuguese", "Segments": [32, 45, -1, 1, 8, 29]},
  {"Taxon": "Walloon", "Segments": [32, 77, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [32, 31, 13, 74, -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, 48, 79, -1, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [19, 31, 8, -1, -1, 28, 4]},
  {"Taxon": "Walloon", "Segments": [19, -1, -1, -1, 65, 36, -1]},
  {"Taxon": "Friulian", "Segments": [19, 0, 18, 7, -1, -1, -1]},
  {"Taxon": "Romanian", "Segments": [19, -1, -1, -1, 70, -1, -1]}
]},
{"Name": "ToEat", "Data": [
  {"Taxon": "Latin", "Segments": [53, 6, 26, 0, 23, 0, 33, 0]},
  {"Taxon": "Spanish", "Segments": [53, 6, 26, 0, -1, -1, 28, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [53, 6, 26, 0, -1, -1, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [53, 15, 26, -1, -1, 0, 28, -1]}
]},
{"Name": "ToEat-Manducare", "Data": [
  {"Taxon": "Latin", "Segments": [26, 27, 13, 23, 15, 53, 55, 33, 0]},
  {"Taxon": "French", "Segments": [26, 44, -1, 3, -1, -1, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [26, 27, 13, 23, 15, 53, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [26, 27, 13, 10, -1, -1, 27, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [26, 46, -1, 3, -1, -1, 27, 36, -1]},
```

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```
{
  "Taxon": "Portuguese", "Segments": [26, 46, -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, 55, -1, -1]},
  {"Taxon": "Romanian", "Segments": [26, 48, 13, -1, -1, 53, 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, 52, 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, 52, 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, 53, 55, 33, 0]},
  {"Taxon": "Spanish", "Segments": [26, 6, -1, 14, -1, 53, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [26, 6, 33, 14, 7, 53, 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, 72, 27, -1, -1]},
  {"Taxon": "Romanian", "Segments": [26, 15, 33, 14, 0, 53, 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": [67, 15, 67, 55, -1, -1]},
  {"Taxon": "Romanian", "Segments": [14, 15, 10, 0, -1, -1]}
]},
{"Name": "ToSpit", "Data": [
  {"Taxon": "Latin", "Segments": [53, 6, 13, 14, 50, 15, 0, 33, 0]},
  {"Taxon": "French", "Segments": [53, 42, -1, 14, 50, 22, 0, -1, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [53, 15, -1, 14, 50, 7, 36, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [53, 15, -1, 16, 50, 7, 28, -1, -1]}
]},
{"Name": "ToSpit-Exconspuere", "Data": [
  {"Taxon": "Spanish", "Segments": [0, 14, 53, 15, -1, 50, 7, 28]},
  {"Taxon": "Catalan", "Segments": [4, 14, 53, 15, -1, 50, 7, -1]},
  {"Taxon": "Romanian", "Segments": [-1, 14, 53, 15, 12, 50, 27, -1]}
]},
{"Name": "ToSpit-Sputare", "Data": [
  {"Taxon": "Latin", "Segments": [-1, 14, 50, 15, 20, 0, 33, 0]},
  {"Taxon": "Spanish", "Segments": [0, 14, 50, 15, 20, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [-1, 14, 50, 15, 20, 27, 28, 0]},
  {"Taxon": "Friulian", "Segments": [14, 50, 15, 23, 55, -1, -1, -1]}
]},
{"Name": "ToKnow", "Data": [
  {"Taxon": "Latin", "Segments": [14, 53, 37, 33, 0]},
  {"Taxon": "Romanian", "Segments": [16, 20, 7, -1, -1]}
]}
```

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```
}},
{"Name": "ToKnow-Sapere", "Data": [
  {"Taxon": "Latin", "Segments": [14, 27, 50, -1, 0, 33, 0]},
  {"Taxon": "French", "Segments": [14, 27, 18, 8, 27, 36, -1]},
  {"Taxon": "Spanish", "Segments": [14, 27, 19, -1, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [14, 27, 50, -1, 25, 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, 65, 57, -1]},
  {"Taxon": "Friulian", "Segments": [14, 27, 18, -1, 25, -1, -1]}
]},
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  {"Taxon": "French", "Segments": [53, 9, -1, 13, 31, -1, 20, 36, -1, -1]},
  {"Taxon": "Spanish", "Segments": [53, 6, -1, 13, 6, 59, 0, 28, -1, -1]},
  {"Taxon": "Italian", "Segments": [53, 6, -1, 13, 6, 16, 16, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [53, 6, -1, 38, 0, 14, -1, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [53, 15, -1, 38, 48, 14, -1, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [53, 15, -1, 13, 31, 16, -1, 4, -1, -1]},
  {"Taxon": "Walloon", "Segments": [53, 7, -1, 13, 9, 40, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [53, 6, -1, 38, 6, 14, -1, 7, -1, -1]},
  {"Taxon": "Romanian", "Segments": [53, 15, -1, 13, 39, 16, 20, 0, -1, -1]}
]},
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  {"Taxon": "French", "Segments": [53, 64, -1, -1, 7, 23, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [53, 8, -1, -1, 7, 23, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [53, -1, 6, 10, 7, 20, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [53, -1, 15, 3, 7, 20, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [53, -1, 15, 3, 7, 20, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [53, -1, 15, -1, 12, 23, 27, -1, -1]},
  {"Taxon": "Romanian", "Segments": [53, -1, 15, 10, 0, 20, 27, -1, -1]}
]},
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  {"Taxon": "Latin", "Segments": [50, 25, 13, 14, 55, 33, 0]},
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  {"Taxon": "Spanish", "Segments": [50, 0, 13, 14, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [50, 0, 13, 14, 27, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [50, 43, -1, 14, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [50, 43, -1, 14, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [50, 4, 13, 14, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [50, 81, -1, 14, 0, -1, -1]},
  {"Taxon": "Friulian", "Segments": [50, 0, 75, 14, 55, -1, -1]},
  {"Taxon": "Romanian", "Segments": [50, 4, -1, 14, 27, -1, -1]}
]},
{"Name": "ToFear", "Data": [
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  {"Taxon": "Spanish", "Segments": [20, 0, 26, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [20, 0, 26, 25, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 0, 26, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [20, 48, 26, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [20, 0, 26, 4, -1, -1]},
```

## Appendix 2 - Tongue Twister Configuration

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```
{
  "Taxon": "Friulian", "Segments": [20, 0, 26, 7, -1, -1]},
  "Taxon": "Romanian", "Segments": [20, 0, 26, 0, -1, -1]}
}],
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  {"Taxon": "Latin", "Segments": [20, 33, 0, 26, -1, 0, 33, 0]},
  {"Taxon": "French", "Segments": [53, 36, 43, -1, 23, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [20, 28, 0, 26, -1, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [20, 33, 0, 26, -1, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 28, 0, 26, -1, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [20, 28, 48, 26, -1, 0, 28, -1]},
  {"Taxon": "Friulian", "Segments": [20, 33, 7, 26, -1, 55, -1, -1]}
}],
{"Name": "ToSleep", "Data": [
  {"Taxon": "Latin", "Segments": [23, -1, 6, 33, 26, 37, 33, 0]},
  {"Taxon": "French", "Segments": [23, -1, 9, 36, 26, 7, 36, -1]},
  {"Taxon": "Spanish", "Segments": [23, -1, 6, 28, 26, 7, 28, -1]},
  {"Taxon": "Italian", "Segments": [23, -1, 6, 33, 26, 37, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [23, -1, 6, 36, 26, 7, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [23, -1, 15, 28, 26, 7, 28, -1]},
  {"Taxon": "Catalan", "Segments": [23, -1, 15, 33, 26, 7, -1, -1]},
  {"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]}
}],
{"Name": "ToLive", "Data": [
  {"Taxon": "Latin", "Segments": [8, 37, 8, 0, 33, 0]},
  {"Taxon": "French", "Segments": [18, 7, 18, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [19, 7, 19, 7, 28, -1]},
  {"Taxon": "Italian", "Segments": [18, 37, 18, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [18, 7, 18, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [18, 7, 18, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [19, 7, 8, -1, 28, 4]},
  {"Taxon": "Friulian", "Segments": [18, 7, 18, 7, -1, -1]},
  {"Taxon": "Romanian", "Segments": [18, 7, -1, 27, -1, -1]}
}],
{"Name": "ToDie", "Data": [
  {"Taxon": "Latin", "Segments": [26, 6, 33, 37, -1, -1]},
  {"Taxon": "French", "Segments": [26, 15, 36, 7, 36, -1]},
  {"Taxon": "Spanish", "Segments": [26, 6, 28, 7, 28, -1]},
  {"Taxon": "Italian", "Segments": [26, 6, 33, 37, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [26, 6, 36, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [26, 15, 36, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [26, 15, 28, 7, -1, -1]},
  {"Taxon": "Walloon", "Segments": [26, 9, 57, 7, -1, -1]},
  {"Taxon": "Friulian", "Segments": [26, 15, 33, 37, -1, -1]},
  {"Taxon": "Romanian", "Segments": [26, 15, 33, 7, -1, -1]}
}],
{"Name": "ToSwim", "Data": [
  {"Taxon": "Latin", "Segments": [13, -1, 27, 20, 55, 33, 0]},
  {"Taxon": "Spanish", "Segments": [13, -1, 27, 23, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [13, 8, 6, 20, 27, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [13, -1, 27, 23, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [13, -1, 29, 52, 27, 28, -1]},
```

## Appendix 2 - Tongue Twister Configuration

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```
{
  "Taxon": "Catalan", "Segments": [13, -1, 4, 23, 27, -1, -1]},
  "Taxon": "Friulian", "Segments": [13, -1, 27, 23, 55, -1, -1]}
}],
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  {"Taxon": "French", "Segments": [13, 27, -1, -1, 3, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [13, 27, 19, 0, 1, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [13, 27, 18, 7, 1, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [13, 27, 18, 48, 72, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [13, 29, 18, 48, 72, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [13, 4, 19, 4, 1, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [13, 31, -1, -1, 10, 37, -1, -1]},
  {"Taxon": "Friulian", "Segments": [13, 27, 18, 7, 74, 55, -1, -1]},
  {"Taxon": "Romanian", "Segments": [13, 27, 18, 7, 1, 27, -1, -1]}
}],
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  {"Taxon": "French", "Segments": [18, 6, 32, 0, -1, -1]},
  {"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]},
  {"Taxon": "Catalan", "Segments": [19, 15, 32, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [18, 9, 32, 0, -1, -1]}
}],
{"Name": "ToFly-Exvolare", "Data": [
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  {"Taxon": "Friulian", "Segments": [51, 18, 6, 32, 55, -1, -1]},
  {"Taxon": "Romanian", "Segments": [51, 19, 15, 28, 27, -1, -1]}
}],
{"Name": "ToWalk", "Data": [
  {"Taxon": "French", "Segments": [16, 4, 26, 7, 13, 0, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [53, 27, 26, 7, 13, 27, 28, -1, -1]},
  {"Taxon": "Italian", "Segments": [53, 27, 26, 26, 7, 13, 55, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [53, 29, 26, 7, 38, 27, 36, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [53, 29, 26, 7, 38, 27, 28, -1, -1]},
  {"Taxon": "Catalan", "Segments": [53, 4, 26, 7, 13, 27, -1, -1, -1]},
  {"Taxon": "Walloon", "Segments": [47, 7, 26, 7, 13, 0, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [47, 12, 27, 26, 7, 13, 27, -1, -1]}
}],
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  {"Taxon": "Walloon", "Segments": [26, 55, 57, 47, 37]}
}],
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  {"Taxon": "Latin", "Segments": [26, 0, 33, 74, 0, 33, 0]},
  {"Taxon": "Italian", "Segments": [26, 31, 33, 10, 0, 33, 0]},
  {"Taxon": "Romanian", "Segments": [26, 0, 33, 10, 0, -1, -1]}
}],
{"Name": "ToWalk-Ambitare", "Data": [
  {"Taxon": "Latin", "Segments": [27, 26, 19, 7, 20, 55, 33, 0]},
  {"Taxon": "Spanish", "Segments": [27, 13, 23, -1, -1, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [27, 13, 23, -1, -1, 27, 33, 0]},
```



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```
{
  "Taxon": "PortugueseBrazil", "Segments": [46, -1, 23, -1, -1, 27, 36, -1]},
  "Taxon": "Portuguese", "Segments": [46, -1, 23, -1, -1, 27, 28, -1]}
}],
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  {"Taxon": "French", "Segments": [18, 4, 13, 7, 36, -1]},
  {"Taxon": "Spanish", "Segments": [19, 0, 13, 7, 28, -1]},
  {"Taxon": "Italian", "Segments": [18, 0, 13, 37, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [18, -1, -1, 7, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [18, -1, -1, 7, 28, -1]},
  {"Taxon": "Catalan", "Segments": [19, 4, 13, 7, -1, -1]},
  {"Taxon": "Walloon", "Segments": [18, 7, 13, 7, -1, -1]},
  {"Taxon": "Friulian", "Segments": [18, 7, 38, 37, -1, -1]},
  {"Taxon": "Romanian", "Segments": [18, 0, 13, 7, -1, -1]}
}],
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  {"Taxon": "French", "Segments": [0, -1, 20, 44, -1, 23, -1, 36, -1, -1]},
  {"Taxon": "Spanish", "Segments": [0, 53, 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, 43, -1, 23, 0, 36, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [7, 16, 20, 43, -1, 23, 0, 28, -1, -1]},
  {"Taxon": "Catalan", "Segments": [4, -1, 14, 20, 0, 13, 23, -1, 28, 4]},
  {"Taxon": "Romanian", "Segments": [0, 53, 14, 20, 7, 13, 23, 0, -1, -1]}
}],
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  {"Taxon": "Latin", "Segments": [12, 27, -1, 53, 25, 33, 0]},
  {"Taxon": "French", "Segments": [3, 0, -1, 51, 7, 36, -1]},
  {"Taxon": "Spanish", "Segments": [5, 27, -1, 59, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [10, 27, -1, 47, 25, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [3, 29, -1, 51, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [3, 29, -1, 51, 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": [51, 4, -1, 47, 70, -1, -1]}
}],
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  {"Taxon": "French", "Segments": [14, 8, 27, -1, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [14, -1, 0, -1, -1, 28, -1]},
  {"Taxon": "Italian", "Segments": [14, -1, 0, 23, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [14, -1, 0, -1, -1, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [14, -1, 0, -1, -1, 28, -1]},
  {"Taxon": "Romanian", "Segments": [16, -1, 0, 23, 70, -1, -1]}
}],
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  {"Taxon": "Latin", "Segments": [14, 0, 23, 0, 13, 20, 55, 33, 0]},
  {"Taxon": "Spanish", "Segments": [14, 0, -1, -1, 13, 20, 27, 28, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [14, 43, -1, -1, -1, 20, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [14, 43, -1, -1, -1, 20, 27, 28, -1]},
  {"Taxon": "Friulian", "Segments": [14, 0, -1, -1, 13, 20, 55, -1, -1]}
]
```



## Appendix 2 - Tongue Twister Configuration

---

```
{
  "Name": "ToStand", "Data": [
    {"Taxon": "Latin", "Segments": [-1, 14, 20, 55, 33, 0]},
    {"Taxon": "French", "Segments": [31, -1, 20, -1, 36, -1]},
    {"Taxon": "Spanish", "Segments": [0, 14, 20, 27, 28, -1]},
    {"Taxon": "Italian", "Segments": [-1, 14, 20, 55, 33, 0]},
    {"Taxon": "PortugueseBrazil", "Segments": [48, 16, 20, 27, 28, -1]},
    {"Taxon": "Portuguese", "Segments": [48, 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, 55, -1, -1]},
    {"Taxon": "Romanian", "Segments": [-1, 14, 20, 27, -1, -1]}
  ]
},
{
  "Name": "ToStand-Levare", "Data": [
    {"Taxon": "Latin", "Segments": [32, 0, 18, 55, 33, 0]},
    {"Taxon": "French", "Segments": [32, 4, 18, 0, -1, -1]},
    {"Taxon": "Spanish", "Segments": [5, 0, 19, 27, 28, -1]},
    {"Taxon": "Italian", "Segments": [32, 0, 18, 55, 33, 0]},
    {"Taxon": "PortugueseBrazil", "Segments": [32, 0, 18, 27, 36, -1]},
    {"Taxon": "Portuguese", "Segments": [32, 48, 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, 55, -1, -1]},
    {"Taxon": "Romanian", "Segments": [32, -1, 15, 27, -1, -1]}
  ]
},
{
  "Name": "ToStand-Altiare", "Data": [
    {"Taxon": "Latin", "Segments": [-1, 27, 32, 20, 7, 55, 33, 0]},
    {"Taxon": "French", "Segments": [-1, 6, -1, 14, -1, 0, -1, -1]},
    {"Taxon": "Spanish", "Segments": [-1, 27, 32, 59, -1, 27, 28, -1]},
    {"Taxon": "Italian", "Segments": [-1, 27, 32, 54, 27, 33, 0, -1]},
    {"Taxon": "PortugueseBrazil", "Segments": [-1, 27, 66, 14, -1, 27, -1, -1]},
    {"Taxon": "Portuguese", "Segments": [-1, 27, 66, 14, -1, 27, 28, -1]},
    {"Taxon": "Catalan", "Segments": [-1, 4, 32, 14, -1, 27, -1, -1]},
    {"Taxon": "Walloon", "Segments": [40, 82, -1, 14, -1, 37, -1, -1]},
    {"Taxon": "Friulian", "Segments": [-1, 27, 32, 20, 16, -1, 55, -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, 55, -1, -1]},
    {"Taxon": "Romanian", "Segments": [20, 15, 33, 13, 27, -1, -1]}
  ]
},
{
  "Name": "ToTurnIntransitive-Gyrare", "Data": [
    {"Taxon": "Latin", "Segments": [74, 22, 33, 55, 33, 0]},
    {"Taxon": "French", "Segments": [3, 7, 36, 0, -1, -1]},
    {"Taxon": "Spanish", "Segments": [34, 7, 28, 27, 28, -1]},
    {"Taxon": "Italian", "Segments": [10, 7, 33, 55, 28, 0]},
    {"Taxon": "PortugueseBrazil", "Segments": [3, 7, 28, 27, 28, -1]},
  ]
}
```

## Appendix 2 - Tongue Twister Configuration

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```
{
  "Taxon": "Portuguese", "Segments": [3, 7, 28, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [3, 7, 28, 27, -1, -1]},
  {"Taxon": "Friulian", "Segments": [10, 7, 33, 55, -1, -1]}
]},
{"Name": "ToTurnIntransitive-AncestralClass3", "Data": [
  {"Taxon": "French", "Segments": [18, 7, 36, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [19, 7, 28, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [18, 7, 33, 55, 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, 55, -1, -1]}
]},
{"Name": "ToTurnIntransitive-Torquere", "Data": [
  {"Taxon": "Latin", "Segments": [20, 6, 33, 71, 25, 33, 0]},
  {"Taxon": "French", "Segments": [20, 9, 36, 23, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [20, 6, 28, 59, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [20, 9, 33, 47, 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]},
  {"Taxon": "Romanian", "Segments": [20, 39, 33, 47, 0, -1, -1]}
]},
{"Name": "ToFall", "Data": [
  {"Taxon": "Latin", "Segments": [53, -1, 27, 23, 0, 33, 0]},
  {"Taxon": "French", "Segments": [16, 8, 27, -1, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [53, -1, 27, -1, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [53, -1, 27, 23, 25, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [53, -1, 29, -1, 7, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [53, -1, 29, -1, 7, 28, -1]},
  {"Taxon": "Catalan", "Segments": [53, -1, 27, 8, -1, 33, 4]},
  {"Taxon": "Walloon", "Segments": [47, -1, 63, -1, -1, 57, -1]},
  {"Taxon": "Friulian", "Segments": [47, 12, 27, 23, 0, -1, -1]},
  {"Taxon": "Romanian", "Segments": [53, 4, 23, 70, -1, -1, -1]}
]},
{"Name": "ToFall-Tumbare", "Data": [
  {"Taxon": "French", "Segments": [20, 62, -1, 19, 0, -1]},
  {"Taxon": "Spanish", "Segments": [20, 15, 26, 19, 27, 28]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 62, -1, 19, 27, 36]},
  {"Taxon": "Portuguese", "Segments": [20, 62, -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]}
]},
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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, 25, 28, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 0, -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]},
```

## Appendix 2 - Tongue Twister Configuration

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```
{
  "Taxon": "Walloon", "Segments": [20, 7, 13, -1, 7, -1, -1]},
  {"Taxon": "Friulian", "Segments": [20, 7, 13, 12, 7, -1, -1]},
  {"Taxon": "Romanian", "Segments": [54, 7, 13, -1, 0, -1, -1]}
}],
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  {"Taxon": "Spanish", "Segments": [14, 0, 1, 15, 28, 27, 28]},
  {"Taxon": "PortugueseBrazil", "Segments": [14, 48, 1, 15, 28, 27, 36]},
  {"Taxon": "Portuguese", "Segments": [14, 48, 72, 15, 28, 27, 28]}
]},
{"Name": "ToSqueeze", "Data": [
  {"Taxon": "Latin", "Segments": [0, 53, 14, 50, 33, 7, 26, -1, 0, 33, 0]},
  {"Taxon": "French", "Segments": [0, -1, -1, 50, 36, 81, -1, 23, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [0, 53, 14, 50, 28, 0, 26, -1, 7, 28, -1]},
  {"Taxon": "Italian", "Segments": [-1, -1, 14, 50, 33, 31, 26, -1, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [7, -1, 16, 50, 33, 4, 26, -1, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [7, -1, 16, 50, 33, 4, 26, -1, 0, 33, -1]},
  {"Taxon": "Catalan", "Segments": [4, -1, 14, 50, 28, 0, 26, -1, 4, -1, -1]},
  {"Taxon": "Friulian", "Segments": [0, -1, 14, 50, 33, 7, 26, -1, 7, -1, -1]},
  {"Taxon": "Romanian", "Segments": [-1, 14, 53, -1, 33, 0, 26, 0, -1, -1, -1]}
]},
{"Name": "ToSqueeze-Serrere", "Data": [
  {"Taxon": "Latin", "Segments": [14, 0, 33, 33, 0, 33, 0]},
  {"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, 57, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [14, 4, -1, 33, 27, -1, -1]}
]},
{"Name": "ToSqueeze-Serare", "Data": [
  {"Taxon": "Latin", "Segments": [14, 0, -1, 33, 27, 33, 0]},
  {"Taxon": "French", "Segments": [14, 0, -1, 36, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [59, 0, -1, 33, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [14, 0, 33, 33, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [14, 48, -1, 36, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [14, 48, -1, 36, 27, 28, -1]},
  {"Taxon": "Walloon", "Segments": [14, 31, -1, 57, 0, -1, -1]}
]},
{"Name": "ToSqueeze-Appetorare", "Data": [
  {"Taxon": "Latin", "Segments": [27, 50, 50, 0, 53, 20, 6, 33, 55, 33, 0]},
  {"Taxon": "Spanish", "Segments": [27, -1, 50, -1, -1, 28, 0, 20, 27, 28, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [29, -1, 50, 48, -1, 28, -1, 20, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [29, -1, 50, 48, -1, 28, -1, 20, 27, 28, -1]}
]},
{"Name": "ToSqueeze-Stringere", "Data": [
  {"Taxon": "Latin", "Segments": [-1, 14, 20, 33, 7, 13, 74, 0, 33, 0]},
  {"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, 45, -1, 3, 7, 33, -1]},
  {"Taxon": "Portuguese", "Segments": [4, 16, 20, 33, 45, 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, 74, 0, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [14, 20, 33, 31, 13, 74, 37, -1, -1, -1]},
  {"Taxon": "Romanian", "Segments": [14, 20, 33, 48, 13, 10, 0, -1, -1, -1]}
]}
```

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```
}},
{"Name": "ToRub", "Data": [
  {"Taxon": "Latin", "Segments": [24, 33, 7, 53, 55, 33, 0]},
  {"Taxon": "French", "Segments": [24, 36, 68, 0, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [24, 28, 0, 1, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [24, 33, 0, 74, 55, 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, 53, 27, -1, -1]}
]},
{"Name": "ToRub-Exfricare", "Data": [
  {"Taxon": "PortugueseBrazil", "Segments": [48, 16, 24, 28, 48, 1, 27, 28]},
  {"Taxon": "Portuguese", "Segments": [48, 16, 24, 28, 48, 72, 27, 28]}
]},
{"Name": "ToRub-Frictare", "Data": [
  {"Taxon": "Latin", "Segments": [24, 33, 7, 53, 20, 55, 33, 0]},
  {"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]}
]},
{"Name": "ToRub-Frictiare", "Data": [
  {"Taxon": "Spanish", "Segments": [24, 33, 7, 14, 27, 28]},
  {"Taxon": "Catalan", "Segments": [24, 28, 4, 14, 27, -1]}
]},
{"Name": "ToWash", "Data": [
  {"Taxon": "Latin", "Segments": [32, 27, 8, 55, 33, 0]},
  {"Taxon": "French", "Segments": [32, 27, 18, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [32, 27, 79, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [32, 27, 18, 55, 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, 55, -1, -1]},
  {"Taxon": "Romanian", "Segments": [32, 27, -1, -1, -1, -1]}
]},
{"Name": "ToWipe", "Data": [
  {"Taxon": "Latin", "Segments": [20, 0, 33, 1, 0, 33, 0]},
  {"Taxon": "Italian", "Segments": [20, 31, 33, 10, 0, 33, 0]}
]},
{"Name": "ToWipe-Extergere", "Data": [
  {"Taxon": "Latin", "Segments": [0, 53, 14, 20, 0, 33, 1, 0, 33, 0]},
  {"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]}
]},
{"Name": "ToWipe-Exsucare", "Data": [
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  {"Taxon": "French", "Segments": [0, -1, 14, 64, 7, -1, 12, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [0, 13, 34, -1, 15, 1, -1, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [27, 16, 16, -1, 15, 1, -1, 55, 33, 0]},
```

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```
{
  "Taxon": "PortugueseBrazil", "Segments": [43, -1, 16, -1, 15, 1, -1, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [43, -1, 16, -1, 15, 72, -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, 55, -1, -1]},
  {"Taxon": "Romanian", "Segments": [15, -1, 14, -1, -1, 53, -1, 27, -1, -1]}
]},
{"Name": "ToWipe-Limpidare", "Data": [
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  {"Taxon": "Spanish", "Segments": [32, 7, 26, 50, 12, -1, 27, 28, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [32, 45, -1, 50, -1, -1, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [32, 45, -1, 50, -1, -1, 27, 28, -1]}
]},
{"Name": "ToPull", "Data": [
  {"Taxon": "Latin", "Segments": [20, 7, 33, 55, 33, 0]},
  {"Taxon": "French", "Segments": [20, 7, 36, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [20, 7, 28, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [20, 7, 33, 55, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [47, 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]},
  {"Taxon": "Friulian", "Segments": [20, 7, 33, 55, -1, -1]}
]},
{"Name": "ToPull-Pulsare", "Data": [
  {"Taxon": "Latin", "Segments": [50, 15, 32, 14, 55, 33, 0]},
  {"Taxon": "French", "Segments": [50, 15, -1, 14, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [50, 15, -1, 34, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [50, 15, 32, 14, 55, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [50, 15, -1, 16, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [50, 15, -1, 16, 27, 28, -1]},
  {"Taxon": "Walloon", "Segments": [50, 21, 14, 37, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [50, 15, 32, 14, 55, -1, -1]},
  {"Taxon": "Romanian", "Segments": [50, 15, 32, 14, 27, -1, -1]}
]},
{"Name": "ToPull-Trahere", "Data": [
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  {"Taxon": "French", "Segments": [20, 36, -1, -1, -1, 31, 36, -1]},
  {"Taxon": "Italian", "Segments": [20, 33, 27, -1, 33, -1, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 28, 27, -1, 51, 0, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [20, 28, 29, -1, 51, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [20, 28, 31, -1, 8, -1, 28, 4]},
  {"Taxon": "Friulian", "Segments": [20, 33, 73, -1, -1, -1, -1, -1]},
  {"Taxon": "Romanian", "Segments": [20, 33, 27, -1, 10, 0, -1, -1]}
]},
{"Name": "ToPush", "Data": [
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  {"Taxon": "Italian", "Segments": [7, 26, 50, 7, 13, 10, 0, 33, 0]},
  {"Taxon": "Catalan", "Segments": [4, 26, 50, 31, 38, -1, 4, -1, -1]},
  {"Taxon": "Romanian", "Segments": [48, 26, 50, 7, 13, 10, 0, -1, -1]}
]},
{"Name": "ToThrow", "Data": [
  {"Taxon": "Latin", "Segments": [12, 27, -1, 53, 20, 55, 33, 0]},
```

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```
{
  "Taxon": "French", "Segments": [3, 4, -1, -1, 20, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [-1, 0, -1, -1, 47, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [10, 0, -1, 20, 20, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [3, 60, -1, 20, 27, 28, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [3, 60, -1, 20, 27, 28, -1, -1]},
  {"Taxon": "Catalan", "Segments": [34, 7, -1, 20, 27, -1, -1, -1]},
  {"Taxon": "Walloon", "Segments": [10, 31, -1, 20, 0, -1, -1, -1]}
}],
{"Name": "ToThrow-Lanceare", "Data": [
  {"Taxon": "Latin", "Segments": [32, 27, 13, 53, 0, 55, 33, 0]},
  {"Taxon": "French", "Segments": [32, 44, -1, 14, -1, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [32, 27, 13, -1, 59, -1, 27, 28]},
  {"Taxon": "Italian", "Segments": [32, 27, 13, 47, 55, 33, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [32, 46, -1, 14, -1, 27, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [32, 46, -1, 14, -1, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [35, 4, 13, 14, -1, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [32, 27, 13, 67, -1, 37, -1, -1]},
  {"Taxon": "Friulian", "Segments": [32, 27, 13, 47, 55, -1, -1, -1]}
}],
{"Name": "ToThrow-Eruncare", "Data": [
  {"Taxon": "Latin", "Segments": [25, -1, 33, 15, 13, 53, 55, 33, 0]},
  {"Taxon": "Spanish", "Segments": [27, -1, 33, 27, 13, 53, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [27, 33, 33, 6, 13, 47, 55, 33, 0]},
  {"Taxon": "Romanian", "Segments": [27, -1, 28, 15, 75, 53, 27, -1, -1]}
}],
{"Name": "ToTie", "Data": [
  {"Taxon": "Latin", "Segments": [32, 7, 1, 55, 33, 0]},
  {"Taxon": "French", "Segments": [32, 7, -1, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [32, 0, 1, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [32, 0, 1, 55, 33, 0]},
  {"Taxon": "Catalan", "Segments": [35, 7, 72, 27, -1, -1]},
  {"Taxon": "Walloon", "Segments": [32, 9, 12, 37, -1, -1]},
  {"Taxon": "Friulian", "Segments": [32, 0, -1, 55, -1, -1]},
  {"Taxon": "Romanian", "Segments": [32, 0, 74, 27, -1, -1]}
}],
{"Name": "ToTie-Aptare", "Data": [
  {"Taxon": "Latin", "Segments": [27, 50, 20, 55, 33, 0]},
  {"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]}
}],
{"Name": "ToSew", "Data": [
  {"Taxon": "Latin", "Segments": [53, 2, 13, -1, 14, 15, 0, 33, 0]},
  {"Taxon": "French", "Segments": [53, 15, -1, 23, -1, -1, -1, 36, -1]},
  {"Taxon": "Spanish", "Segments": [53, 6, -1, -1, 14, -1, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [53, 15, -1, -1, 47, -1, 37, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [53, 15, -1, -1, 51, -1, 0, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [53, 15, -1, -1, 51, -1, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [53, 15, -1, -1, 51, -1, 7, -1, -1]},
  {"Taxon": "Walloon", "Segments": [53, 65, -1, -1, 51, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [53, 15, -1, -1, 51, 7, -1, -1, -1]},
  {"Taxon": "Romanian", "Segments": [67, 39, -1, -1, 14, -1, 0, -1, -1]}
]
```

## Appendix 2 - Tongue Twister Configuration

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```
{
  "Name": "ToCount", "Data": [
    {"Taxon": "Latin", "Segments": [53, 6, 26, 50, 15, 20, 55, 33, 0]},
    {"Taxon": "French", "Segments": [53, 62, -1, -1, -1, 20, 0, -1, -1]},
    {"Taxon": "Spanish", "Segments": [53, 6, 13, -1, -1, 20, 27, 28, -1]},
    {"Taxon": "Italian", "Segments": [53, 6, 13, -1, -1, 20, 55, 33, 0]},
    {"Taxon": "PortugueseBrazil", "Segments": [53, 62, -1, -1, -1, 20, 27, 28, -1]},
    {"Taxon": "Portuguese", "Segments": [53, 62, -1, -1, -1, 20, 27, 28, -1]},
    {"Taxon": "Catalan", "Segments": [53, 15, 26, -1, -1, 20, 27, -1, -1]},
    {"Taxon": "Walloon", "Segments": [53, 62, -1, -1, 20, 0, -1, -1, -1]},
    {"Taxon": "Friulian", "Segments": [53, 6, 13, -1, -1, 20, 55, -1, -1]}
  ],
  "Name": "ToCount-Enumerare", "Data": [
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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, 55, 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]}
  ],
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    {"Taxon": "French", "Segments": [23, 7, -1, -1, 36, -1]},
    {"Taxon": "Spanish", "Segments": [23, 0, 59, 7, 28, -1]},
    {"Taxon": "Italian", "Segments": [23, 37, -1, -1, 33, 0]},
    {"Taxon": "PortugueseBrazil", "Segments": [23, 7, 51, -1, 0, 28]},
    {"Taxon": "Portuguese", "Segments": [23, 7, 51, -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": [51, 7, 47, 0, -1, -1]}
  ],
  "Name": "ToSay-Exponere", "Data": [
    {"Taxon": "Latin", "Segments": [0, 53, 14, 50, 2, 13, 0, 33, 0]},
    {"Taxon": "Italian", "Segments": [-1, -1, 14, 50, 6, 33, -1, 33, 0]},
    {"Taxon": "Romanian", "Segments": [-1, -1, 14, 50, 15, 13, 0, -1, -1]}
  ],
  "Name": "ToSing-AncestralClass", "Data": [
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    {"Taxon": "Catalan", "Segments": [53, 4, 13, 20, 27, -1, -1]},
    {"Taxon": "Walloon", "Segments": [47, 49, -1, 20, 0, -1, -1]},
    {"Taxon": "Friulian", "Segments": [67, 27, 13, 20, 55, -1, -1]},
    {"Taxon": "Romanian", "Segments": [53, 48, 13, 20, 27, -1, -1]}
  ],
  "Name": "ToPlay-Ludere", "Data": [
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    {"Taxon": "Spanish", "Segments": [32, 15, 23, 7, 28, -1]}
  ]
}
```



## Appendix 2 - Tongue Twister Configuration

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```
}},
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  {"Taxon": "Italian", "Segments": [10, 6, -1, 53, 55, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [3, 6, -1, 1, 27, 36, -1]},
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  {"Taxon": "Walloon", "Segments": [10, 15, 8, -1, 0, -1, -1]},
  {"Taxon": "Friulian", "Segments": [10, 15, 12, -1, 55, -1, -1]},
  {"Taxon": "Romanian", "Segments": [3, 15, -1, 53, 27, -1, -1]}
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  {"Taxon": "Romanian", "Segments": [24, 32, 15, 67, 20, 15, 27, -1, -1]}
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  {"Taxon": "Italian", "Segments": [24, 32, 15, 7, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [24, 32, 8, 7, 36, -1]},
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  {"Taxon": "Portuguese", "Segments": [53, 15, -1, 27, 28, -1]},
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  {"Taxon": "Walloon", "Segments": [53, 9, 32, 0, -1, -1]}
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  {"Taxon": "Spanish", "Segments": [0, -1, 14, 53, 15, 33, 7, 28, -1, -1]},
  {"Taxon": "Italian", "Segments": [-1, -1, 14, 53, 6, 33, 33, 0, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [7, -1, 16, 53, 6, -1, 36, 0, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [7, -1, 16, 53, 15, -1, 57, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [4, -1, 14, 53, 6, -1, 33, 4, -1, -1]},
```



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```
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  "Taxon": "Romanian", "Segments": [-1, -1, 14, 53, 15, 28, 10, 0, -1, -1]}
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  {"Taxon": "Portuguese", "Segments": [53, 15, -1, 36, 0, 28, -1]},
  {"Taxon": "Catalan", "Segments": [53, 6, -1, 33, 4, -1, -1]},
  {"Taxon": "Friulian", "Segments": [53, 6, -1, 33, 7, -1, -1]},
  {"Taxon": "Romanian", "Segments": [53, 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]},
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  {"Taxon": "Catalan", "Segments": [3, 4, 32, 27, -1, -1]},
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  {"Taxon": "French", "Segments": [1, 32, 27, -1, 14, -1, 0, -1, -1]},
  {"Taxon": "Italian", "Segments": [1, 12, 27, 20, 47, 12, 27, 33, 0]},
  {"Taxon": "Catalan", "Segments": [1, 32, 4, -1, 14, -1, 27, -1, -1]},
  {"Taxon": "Friulian", "Segments": [74, 32, 27, -1, 47, -1, 55, -1, -1]}
}],
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}],
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  {"Taxon": "Italian", "Segments": [19, 33, 15, 47, 55, 33, 0]},
  {"Taxon": "Walloon", "Segments": [19, 36, 21, 32, 0, -1, -1]},
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  {"Taxon": "Spanish", "Segments": [53, -1, 0, 26, 27, 28, -1]},
  {"Taxon": "Italian", "Segments": [53, 33, 0, 26, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [53, -1, 61, 26, 27, 28, 0]},
  {"Taxon": "Portuguese", "Segments": [53, -1, 60, 26, 27, 36, 0]},
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}],
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  {"Taxon": "French", "Segments": [24, 32, 44, -1, 19, 0, -1, -1]},
```

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```
{
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  {"Taxon": "Italian", "Segments": [24, 12, 27, 26, 26, 27, 33, 0]},
  {"Taxon": "Catalan", "Segments": [24, 66, 27, 26, 27, -1, -1, -1]}
}],
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  {"Taxon": "French", "Segments": [27, 36, 23, -1, 36, -1]},
  {"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, 74, 36, 27, 36, -1]},
  {"Taxon": "Portuguese", "Segments": [24, 32, 27, 1, 28, 27, 28, -1]}
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  {"Taxon": "French", "Segments": [81, -1, 14, 44, -1, 23, 12, 0, -1, -1]},
  {"Taxon": "Spanish", "Segments": [0, 13, 59, 0, 13, 23, -1, 0, 28, -1]},
  {"Taxon": "Italian", "Segments": [7, 13, 47, 31, 13, 23, 12, 27, 33, 0]},
  {"Taxon": "PortugueseBrazil", "Segments": [45, -1, 14, 0, 13, 10, 11, 27, 28, -1]},
  {"Taxon": "Portuguese", "Segments": [45, -1, 14, 43, -1, 23, 12, 27, 28, -1]},
  {"Taxon": "Catalan", "Segments": [4, 13, 14, 0, 13, 23, -1, -1, 28, 4]},
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]},
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  {"Taxon": "Romanian", "Segments": [15, 14, 20, 15, 33, 27, -1, -1]}
]},
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  {"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]},
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  {"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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```
{
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  {"Taxon": "French", "Segments": [26, 15, -1, -1, -1, -1]},
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  {"Taxon": "Italian", "Segments": [26, 6, 32, 20, 6, -1]},
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  {"Taxon": "Portuguese", "Segments": [26, 83, 84, -1, 20, 15]},
  {"Taxon": "Catalan", "Segments": [26, 6, 32, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [26, 6, 32, 67, -1, -1]},
  {"Taxon": "Romanian", "Segments": [26, 15, 32, 20, -1, -1]}
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  {"Taxon": "Italian", "Segments": [20, 27, 13, 20, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [20, 46, -1, 20, 15, -1]},
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  {"Taxon": "Spanish", "Segments": [27, 32, 74, 15, 13, 6]},
  {"Taxon": "Italian", "Segments": [27, 32, 53, 15, 13, 6]},
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  {"Taxon": "Catalan", "Segments": [4, 32, 1, 15, -1, -1]}
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  {"Taxon": "Walloon", "Segments": [50, 62, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [50, 2, 53, -1, -1]}
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  {"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": [62, -1, 20, -1, -1, -1]},
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  {"Taxon": "Romanian", "Segments": [27, 32, 20, -1, -1, -1]}
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  {"Taxon": "PortugueseBrazil", "Segments": [27, 8, -1, -1, -1]},
```

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```
{
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  {"Taxon": "Spanish", "Segments": [26, 27, -1, 38, 6, -1]},
  {"Taxon": "Italian", "Segments": [26, 27, 38, 38, 6, -1]}
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  {"Taxon": "French", "Segments": [1, 36, 49, -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, 46, -1, 10, 7, -1]},
  {"Taxon": "Portuguese", "Segments": [1, 28, 46, -1, 23, 48, -1]},
  {"Taxon": "Catalan", "Segments": [74, 33, 27, 13, -1, -1, -1]},
  {"Taxon": "Walloon", "Segments": [74, 36, 49, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [74, 33, 27, 13, 20, -1, -1]}
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  {"Taxon": "Romanian", "Segments": [26, 27, -1, -1, -1, 28, 0]}
]},
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  {"Taxon": "Spanish", "Segments": [32, 6, -1, 13, 74, 6, -1]},
  {"Taxon": "Italian", "Segments": [32, 15, -1, 13, 1, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [32, 62, -1, 1, 15, -1, -1]},
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  {"Taxon": "Catalan", "Segments": [35, 6, -1, 75, -1, -1, -1]},
  {"Taxon": "Walloon", "Segments": [32, 62, -1, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [32, 15, 13, 53, -1, -1, -1]},
  {"Taxon": "Romanian", "Segments": [32, 15, 13, 74, -1, -1, -1]}
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  {"Taxon": "Italian", "Segments": [32, 27, 33, 1, 6, -1]},
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  {"Taxon": "Portuguese", "Segments": [32, 27, 20, 15, -1]},
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```

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```
}},
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  {"Taxon": "Italian", "Segments": [27, 26, 50, 12, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [46, -1, 16, -1, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [46, -1, 16, -1, 15, -1]},
  {"Taxon": "Catalan", "Segments": [27, 26, 50, 32, 4, -1]}
]},
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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]},
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  {"Taxon": "Catalan", "Segments": [1, 28, 0, 8, -1, -1]},
  {"Taxon": "Walloon", "Segments": [74, 33, 27, 18, -1, -1]},
  {"Taxon": "Friulian", "Segments": [74, 33, 31, 18, 7, -1]},
  {"Taxon": "Romanian", "Segments": [74, 28, 0, 8, -1, -1]}
]},
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  {"Taxon": "French", "Segments": [32, 15, 36, -1, -1, -1]},
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  {"Taxon": "Portuguese", "Segments": [32, 0, 28, 23, 6, -1]}
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  {"Taxon": "Portuguese", "Segments": [50, 48, 51, 27, -1, 52, 15]},
  {"Taxon": "Catalan", "Segments": [50, 4, 51, 27, -1, 20, -1]},
  {"Taxon": "Friulian", "Segments": [50, 0, 51, 27, 13, 20, -1]}
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  {"Taxon": "Catalan", "Segments": [50, 4, 20, 7, 20, -1, -1, -1]},
  {"Taxon": "Walloon", "Segments": [50, 7, -1, 20, 7, -1, -1, -1]}
]},
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  {"Taxon": "PortugueseBrazil", "Segments": [50, 0, 53, 0, 13, 15, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [50, 48, 53, 0, 13, 15, -1, -1]},
  {"Taxon": "Romanian", "Segments": [50, 15, -1, 54, 7, 13, -1, -1]}
```

## Appendix 2 - Tongue Twister Configuration

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```
}},
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]},
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  {"Taxon": "PortugueseBrazil", "Segments": [19, 28, 31, 18, 7, -1]},
  {"Taxon": "Portuguese", "Segments": [19, 28, 31, 18, 48, -1]},
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  {"Taxon": "Walloon", "Segments": [19, 36, 0, 24, -1, -1]}
]},
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  {"Taxon": "Walloon", "Segments": [-1, 14, 20, 36, -1, 65, -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, 48, 26, -1, 20, -1, -1]}
]},
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  {"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, 52, 15, -1]},
  {"Taxon": "Catalan", "Segments": [26, 4, 13, 15, -1, 20, -1, -1]},
```

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```
{
  "Taxon": "Walloon", "Segments": [26, 7, 13, 15, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [26, 7, 13, 21, -1, 20, -1, -1]},
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}],
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  {"Taxon": "French", "Segments": [23, 21, -1, -1, 3, 25, -1, -1, -1]},
  {"Taxon": "Spanish", "Segments": [23, 0, 32, -1, 72, 27, 52, 6, -1]},
  {"Taxon": "Italian", "Segments": [23, 0, 32, 7, 53, 27, 20, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [23, 0, 8, -1, 1, 27, 23, 15, -1]},
  {"Taxon": "Portuguese", "Segments": [23, 31, 66, -1, 72, 27, 52, 15, -1]},
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  {"Taxon": "PortugueseBrazil", "Segments": [14, 15, 47, 7, 8, -1, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [14, 15, 47, 7, 8, -1, -1, -1]},
  {"Taxon": "Catalan", "Segments": [14, 15, 50, 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]},
  {"Taxon": "Romanian", "Segments": [14, 15, 19, 54, 7, 33, 0, -1]}
]},
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  {"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, 48, -1]},
  {"Taxon": "Portuguese", "Segments": [18, 0, 28, -1, 23, 48, -1]},
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  {"Taxon": "Walloon", "Segments": [18, 31, 36, -1, -1, -1, -1]},
  {"Taxon": "Friulian", "Segments": [18, 31, 33, -1, 20, -1, -1]},
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  {"Taxon": "Italian", "Segments": [15, 13, 6, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [83, -1, -1, -1]},
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  {"Taxon": "Walloon", "Segments": [62, -1, -1, -1]},
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  {"Taxon": "Romanian", "Segments": [15, 13, 15, -1]}
]},
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  {"Taxon": "French", "Segments": [23, -1, 69, -1]},
  {"Taxon": "Spanish", "Segments": [23, -1, 6, 14]},
  {"Taxon": "PortugueseBrazil", "Segments": [23, -1, 17, 14]},
```



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```
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  {"Taxon": "Catalan", "Segments": [23, -1, 6, 14]},
  {"Taxon": "Walloon", "Segments": [23, -1, 65, -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]}
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  {"Taxon": "Italian", "Segments": [53, 8, 27, 20, 20, -1, -1, 33, 6]},
  {"Taxon": "PortugueseBrazil", "Segments": [53, 8, 27, -1, 20, -1, -1, 28, 15]},
  {"Taxon": "Portuguese", "Segments": [53, 8, 27, -1, 20, -1, -1, 28, 15]},
  {"Taxon": "Catalan", "Segments": [53, 8, 27, -1, 20, -1, -1, 28, 4]},
  {"Taxon": "Walloon", "Segments": [53, 8, 27, -1, 20, -1, -1, -1, -1]},
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  {"Taxon": "Walloon", "Segments": [14, 43, -1, 53, -1, -1]},
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```
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  {"Taxon": "Portuguese", "Segments": [-1, 29, -1, 53, -1, -1, -1, 7, -1]},
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}],
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  {"Taxon": "Italian", "Segments": [-1, -1, 32, 27, -1]},
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  {"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]}
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]},
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  {"Taxon": "Portuguese", "Segments": [29, 7]}
]},
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  {"Taxon": "Italian", "Segments": [53, -1, 7, -1]},
  {"Taxon": "Catalan", "Segments": [53, -1, 7, -1]},
  {"Taxon": "Walloon", "Segments": [53, -1, 37, -1]},
  {"Taxon": "Friulian", "Segments": [53, 8, 7, -1]}
]},
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  {"Taxon": "PortugueseBrazil", "Segments": [53, -1, 41, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [53, -1, 56, -1, -1]},
  {"Taxon": "Romanian", "Segments": [87, -1, 7, 13, 0]}
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  {"Taxon": "French", "Segments": [53, 8, 27, -1]},
  {"Taxon": "Spanish", "Segments": [53, -1, 0, -1]},
  {"Taxon": "Italian", "Segments": [53, -1, 0, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [53, -1, 7, -1]},
  {"Taxon": "Portuguese", "Segments": [53, -1, 48, -1]},
  {"Taxon": "Catalan", "Segments": [53, -1, 31, -1]},
  {"Taxon": "Walloon", "Segments": [53, 8, 63, -1]},
```

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```
{
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  {"Taxon": "Romanian", "Segments": [47, -1, 0, -1]}
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  {"Taxon": "PortugueseBrazil", "Segments": [53, 8, 46, -1, 23, 15]},
  {"Taxon": "Portuguese", "Segments": [53, 8, 46, -1, 23, 15]},
  {"Taxon": "Catalan", "Segments": [53, 8, 27, 13, -1, -1]},
  {"Taxon": "Walloon", "Segments": [53, 8, 27, 13, 23, -1]},
  {"Taxon": "Friulian", "Segments": [53, 8, 27, 13, 20, -1]},
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  {"Taxon": "Spanish", "Segments": [53, 6, 26, 6, -1, -1]},
  {"Taxon": "Italian", "Segments": [53, 6, 26, 0, -1, -1]},
  {"Taxon": "PortugueseBrazil", "Segments": [53, 6, 26, 15, -1, -1]},
  {"Taxon": "Portuguese", "Segments": [53, 6, 26, 15, -1, -1]},
  {"Taxon": "Catalan", "Segments": [53, 9, 26, -1, -1, -1]},
  {"Taxon": "Walloon", "Segments": [53, 9, 26, 81, -1, -1]},
  {"Taxon": "Friulian", "Segments": [47, 0, 26, 21, 20, -1]},
  {"Taxon": "Romanian", "Segments": [53, 15, 26, -1, -1, -1]}
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  {"Taxon": "Italian", "Segments": [13, 6, 13]},
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  {"Taxon": "Catalan", "Segments": [13, 6, -1]},
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  {"Taxon": "Romanian", "Segments": [13, 15, -1]}
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  {"Taxon": "Italian", "Segments": [13, 0, -1]},
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  {"Taxon": "Portuguese", "Segments": [13, 56, -1]},
  {"Taxon": "Catalan", "Segments": [13, 7, -1]},
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```

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---

```
{
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  {"Taxon": "Walloon", "Segments": [31, -1]},
  {"Taxon": "Friulian", "Segments": [0, -1]},
  {"Taxon": "Romanian", "Segments": [0, -1]}
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  {"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.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 = 89

# 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, femex, femjɐ, fembra, feme je, mulierem, muxer, moʎʎe, muʎex, muʎer, muʎe, mujere, dɔne, hominem, ombre, infantem, infante, fante, nenẽj, nen, epuz, esposa, mulier, muxer, moʎʎe, muʎex, muʎer, muʎe, mujere, epu, esposo, ma:trem, mex, maðre, ma:dre, mer, piskem, peθ, peʃʃe, peʃ, peʃte, awem, abe, awikellum, useʎ, passerem, passero, pasəre, flo:rem, f jo:re, floare, ne, nariʃe, so:lem, sole, sɔare, soreli, lune, etwal, estreja, stella, istrelɐ, iʃtrelɐ, stɛle, age, ploje, plɔaje, mare, mex, sa:lem, sale, se, sare, terra, tɛx, tjera, tɛxɐ, tjere, ka:li:ginem, kaliɖʒine, nebula, njebʎa, nebbja, newlɔ, negurɔ, tene:braj, tɛ:nebre, tene:bra:s, tenɛbɐ, tinjeblas, tɛ:nebre, tɛnebrɔs, fyme, fumate, θjelo, ʃer, wentum, bj ento, ben, fwego, no:men, no:me, nume, no:minem, nombre, lenɣwa, bibere, beber, bere, bebeɐ, biʃer, bevi, komedere, komer, kome, kumer, manduka:re, mɔ̃ze, mandɖ are, morde:re, morðer, mɔrdere, mɔɐdex, murðer, morsika:re, morsikare, murseka, su:gere, syse, suɖɛ, konspuere, kɔspye, eskupir, sputere, esputar, sputare, ski:re, sa pere, saber, sape:re, sabɐ, sɛber, kogno:skere, konoθer, konofʃere, kopeseɐ, kuɲiser, kuɲaʃte, ko:gita:re, kuide, koɖʒitare, kuɖɛta, pe:nsa:re, pɔ̃se, pensar, pensare, pɛse, peɲsa:, time:re, temer, teme:re, temɐ, timer, temɔ, temi, teme, tremere, tremer, tre mare, tremɐ, trimer, dormi:re, wi:were, vi:vere, viveɐ, viver, mori:re, moɐex, muɐe r, nata:re, nwotare, naviga:re, naʒe, nabegar, navigare, wola:re, vole, volare, vole, z vola:re, ʃamine, kammina:re, ʃimine, maʃʃe, mergere, mɛɐɖɛre, mɛɐɖɛ, ambita:re, andare, weni:re, benir, veni:re, veni, ekstendere, etɔ̃dɐ, ekstender, estendere, istɛde ɐ, iʃtɛder, əstendrɔ, ekstinde, jake:re, zezix, jaθer, ɖʒaʃe:re, ʒɐɐex, ʒɐɐer, ɖɛre, jesi, s ede:re, ser, sedere, seɐ, seɖɛa, sedenta:re, sentar, senta:, sta:re, estar, leva:re, lɔve, je bar, levaɐ, leva:, altia:re, ose, altsare, torna:re, tuɐne, tornare, tu:rne, gyra:re, ʒiɐe, ɖɛira:re, viɐe, vira:re, toɐk<sup>w</sup>e:re, toθer, toɐʃere, turser, toɐaʃe, kadere, kaer, kade:re, ʃʒade, tõbe, tume, tene:re, tener, tene:re, tɛx, ter, tsine, segurar, esprimere, epɛ̃dɐ, ekspremir, spremere, iʃprɛmɐ, iʃprɛmer, əspremɔ, esprimi, skreme, serrere, serar, seɐa, serare, seɐe, θerar, serrare, sere, appektora:re, apretar, stringere, etɛ̃dɐ, estr enir, strindɛre, stringe, strindɛ, frika:re, fɐɛje, fregar, frega:re, frea, freka, frikta: re, fɔte, frettare, lawa:re, lave, lavare, tergere, tɛɐɖɛre, ekstergere, estarsir, ʃterɖ ɛ, eksu:ka:re, esɔije, enxugar, affuga:re, suwe, limpidare, tira:re, tiɐe, tire, pulsa:re, puse, trahere, trarre, traze, trezer, traɖɛ, impingere, impindɛre, impindɛ, jakta:re, ʒɔte, etʃar, ɖɛttare, ɖɛte, lankea:re, lɔse, lanʃare, e:runka:re, arrontʃa:re, liga:re, lie, legar, lega:re, lea:, lega, apta:re, ko:nsuere, koser, kuʃi:re, kuzer, ɔqase, komputa:re, kɔte, konta:re, kɔte, e:numera:re, enumeɐe, enumerar, enumera:re, enumera, di:kere, deθir, di:re, dizer, ziʃe, ekspɔ:nere, sporre, spune, kanta:re, ʃɔte, ʃɔte, lu:dere, joka: re, ʒwe, ɖɔka:re, ɖuwe, flu:ktua:re, flyktɔe, fluttuare, fluita:re, fluitare, fluere, fl ye, fluire, ko:la:re, kule, kola:re, kɔle, ekskurrere, eskurir, skorrere, iʃkoɐex, iʃkure r, skurɖɛ, kurrere, korer, korrere, koɐex, kuɐer, kurɖɛ, gela:re, ʒɔle, elar, ɖɛlare, ɖɛgale, glakia:re, glase, gjatʃjare, inglakia:re, ingetsa, bɔyle, brutʃa:re, bɔu:le, kremar e, kɔame, kemar, kremare, keɲmare, keɲmaɐe, flamma:re, flɔbe, flamear, fjammare, arde:re, arder, ardere, aɐdex, ɐrder, arde, flagra:re, flagɐe, flagrare, inkendere, ɛ̃sɔd je, enθender, inʃɛndjare, iʃɛndɛjar, ənsendrɔ, inʃindɛ, ustulare, ustolare, alter, gr andem, grande, grande, majjorem, mare, le, grabe, grɛve, grew, grew, lerdo, pesaɔo, pesante, pezadu, pezant, pekeɲo, pekenu, pikenu, brewis, brebe, brɛve, brew, bɐef, etɐwa, estrefʃo, stretto, menudo, deɣaɔo, delikato, dewgadu, subtillem, sottile, sub tsire, wiridem, vɐx, berde, verde, verdi, verde, due, tres, tre, tref, k<sup>w</sup>i:nk<sup>w</sup>e, ʃiɲkwe, ekkumhi:k, k<sup>w</sup>em, kjen, ʃʒine, ke, ʃe, kome, ʃemut, 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, nabegar, navigare, nəbəga, naviga, segurar, siguraʁ, fregar, frəga, iffrigar, tergere, ekstergere, enxugar, affuga:re, ɛfugar, əfuga, liga:re, legar, lega:re, zogax, zuga, flugtwar, gela:re, glakia:re, glase, gjattfjare, gləsa, inglakia:re, flagra:re, flagʁe, flagrar, flagrare, flagrar, a wgū, ałgū, əlgu, gʁā, grande, grande, grēdʒi, grēdi, longum, lungu, lōgu, largo, laɣgu, largu, grawis, gʁav, grabe, grēve, gravi, gravi, grew, angustus, angosto, angusto, d ewgadu  |
| 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 | ʒ  | ʒə, ʒə, pluʒə, kalizēj, kəlizēj, mǎʒe, mēʒax, mēʒar, mǎʒa, kuzitaʁ, kuzitar, naʒe, ʒe zix, ʒezex, ʒezex, ʒawrə, ʒixə, ʒirar, ʒira, əftrizir, əftrizir, əstərʒi, ʒəte, ʒejtar, ʒwe, ʒ ogax, ʒuyar, ʒuga, ʒuka, ʒəle, ʒilar, ʒəla, inʃindʒe, laɣʒ, du:ʒe:   |
| 4 | ə  | ʒə, dənə, dɔamənə, ɔmə, əspɔʒə, mərɪt, əspɔs, marə, pasəre, ʎunə, lunə, əstəl, ajɣwə, apə, pluʒə, tərə, tsarə, newlə, negurə, tənəbrəs, ʃɛaʃə, limbə, bəwɾə, mǎʒa, musəga, musəgar, musəɣa, əskupi, səʃe, kunɛʃə, pənsa, pəsa, temə, biwɾə, nəda, nəbəga, ʃəm ine, kəmina, vənɪx, bəni, əstendrə, ʒawrə, ʒəʃɛa, əsta, ləve, ʎəba, əlsa, tɔrsə, kawrə, kədə, tənɪx, təni, ɪʃprəməx, ɪʃprəmer, əsprəmə, sərar, səra, əftrizir, əftrizir, əstɛrɛn ə, frəga, frəsa, əstərʒi, əfuga, trəwɾə, əmpɛrə, ʒəte, ʎənsa, kənta, əskorə, korə, ʒəle, ʒəla, gləsa, krəma, ənsendrə, əlgu, altrə, amplə, pəʒā, pəʒat, pəti, pətit, əstɛrɛt, mənɪ, mənɪt, mərunt, dəlikat, dowə, kwatrə, əʎa  |
| 5 | j  | jo, estreja, jubja, jaθer, jebar, aja   |
| 6 | o  | jo, io, jo, nos, no, bos, vof, vos, vose, voste, moʎʎe, domina, doɲa, donə, hominem, ombre, omēj, om, homo:, wəmo, hominē, om, niɲo, nino, sponsa, esposa, ispoza, ɪʃp ozə, moʎʎe, mariðo, marito, sponsus, esposo, spɔzo, ispozu, ɪʃpozu, sokius, sɔʃo, so ts, wazo, utʃello, paxaro, passero, fruto, frutto, flor, floʁ, naso, na:so, sol, sole, soli culus, soreli, o, pjodʒa, ploje, lago, lago, θjelo, ʃelo, bjento, vento, fokum, fwego, f wəko, fogu, foyu, fok, apɔ, anno, nomi, nomi, nombre, komedere, komer, kome, m orde:re, moɣdɣ, moɣdɛr, moɣdɛx, morsika:re, moskar, morsikare, konspuere, kogno: skere, konɔθer, konɔʃfere, kopeseʁ, koposi, koʒɪtare, dormi:re, dormir, doɣmɪx, do rmi, mori:, morir, mori:re, moɣɛx, nɔwɔtare, wola:re, vole, bolar, volare, voaʁ, zvola: re, zvola:, ose, torna:re, tornar, tornare, toɣnaʁ, torna:, toɣkʷe:re, toɣθer, appekto:re, fɔte, frotar, arrontʃa:re, koser, komputa:re, kontar, konta:re, konta:, sporre, jo ka:re, ɟoka:re, zogax, kolar, kola:re, koaʁ, skorrere, ɪʃkoɣɛx, əskorə, skori:, korer, k orrere, koɣɛx, korə, kori, ustolare, omne:s, opɲi, todo, tutto, todɔ, toðu, tot, muʃo, molto, mol, molc, tanto, okœ, alguno, alkuno, poko, pəko, powku, oʃ, otro, altro, owtru, mapo, mapɲo, majjorem, longum, longo, lungu, ʎoɲ, larɣo, largo, lato, anʃo, ampjo, lerdo, lordo, pesaðo, pekeɲo, pitʃino, pikkolo, korto, korto, angosto, angusto, estɛrɛʃo, 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, nɔ:i, vɔ:i, fɛ:mina, femmina, fɛmine, mulierem, domina, hominem, hominē, inf<br>antem, infante, ifēʃi, nɪpɔ, nino, ispoza, mulier, maki, mariðo, marito, maridu, mɛ<br>riðu, marit, mɛrit, ispozu, sokius, mɔri, piskem, peʃi, avi, awikellum, fɔqi, nariθ,<br>nariʃe, naris, nɛriʃ, solculus, soreli, istrelɛ, pluwia, plqi, ka:li:ginem, kalina, kaliɖ<br>ine, kalizēj, kɛlizēj, tinjeblas, kajkia, vint, nomi, nɔ:minem, ling <sup>w</sup> a, lingwa, limbə, b<br>ibere, bevi, mwardi, morsika:re, morsikare, kuspiɔ, kuspiɔ, eskupiɔ, əskupi, ʃti, kin<br>ɔh, kɔnɔsi, kɔ:gita:re, kɔide, kwidar, kɔɖita:re, kuzitaɔ, kuzitar, time:re, temi, trim<br>a:, dɔɔmiɔ, dormir, dɔɔmiɔ, durmir, durmi, dwaɔmi, dormi, vivɔ, bibir, viveɔ, viver,<br>biwɔrə, vivi, via, muɔiɔ, morir, muri, mɔri, muri, naviga:re, navigare, naviga:, navi<br>ga, fɛmine, kaminar, kammina:re, kɛmiɔɔ, kɛmiɔɔ, kɛmina, ʃimine, ʃjamina, a<br>mbita:re, vɔniɔ, benir, viɔ, vir, bɔni, vini, vɪni:, veni, istēdɛɔ, iftēdɛɔ, ekstinde, zezɔ,<br>jesi, altia:re, zɪɔ, xirar, ɖira:re, zirar, zira, ɖira:, viɔ, birar, vira:re, virar, bira, kɛir,<br>tɔniɔ, tɔni, tini, tinji, tsine, eksprimere, ekspremir, ifpremeɔ, ifpremer, esprimi, str<br>ingere, estrepir, strindɛre, əʃtrɪzɪr, əʃtrɪzɪr, stringe, frika:re, frika:re, frisar, estars<br>ir, əstərzi, esɔije, limpida:re, limpjar, tira:re, tiɔ, tirar, ʃira, tira, tire, tira:, imping<br>ere, impindɛre, impindɛ, xita, liga:re, lie, ʃiya, kuzi, kuzi, diɔ, deθir, dizeɔ, di, ziʃe,<br>ludir, fluita:re, fluitare, fluir, fluire, flwiɔ, flwir, flui, eskurir, ifkɔɔɔ, ifkureɔ, k<br>uɔiɔ, kori, glakia:re, inglakia:re, inkendere, intʃendjare, intʃindze, ɔɪni, altri, alius,<br>grēɖi, grawis, gravi, grevi, pittitus, pɔti, pɔtit, piti, pittinus, pitʃino, putsin, pitulus,<br>pikkolo, piʃul, brewis, brɛvi, striktus, istrejtɔ, minutus, minuto, miudu, miuðu, m<br>inu, minu:t, de:lika:tus, delikato, dɔlikat, sutil, sottile, suʃiw, suptil, su:ti, subtsire,<br>wiridem, kwatri, θinko, ʃinɔkwe, sinɔ, ʃinɔ, ʃinʃ, isi, aki, kwi, eki, illa:k, ibi:, vi, ai,<br>ei, k <sup>w</sup> is, ki, kwi, ʃine, k <sup>w</sup> id, ni, i, ʃi |
| 8  | w | ew, jew, wɔ:s, wɔmo, pwasɔ, awem, aw, awikellum, wazo, sɔw, etwal, aywa, akkwa,<br>agwɛ, ajywɔ, ɛ:w, pluwia, saw, nɛvwɛ, newlɔ, sɛw, wentum, fwego, fwɔko, lengwa,<br>lingwa, ligwɛ, bwɔɔ, bɛwɔrə, mwardi, savwɔɔ, kwidar, dwaɔmi, wi:were, biwɔrə, nw<br>otare, wola:re, vwar, weni:re, zawɔrə, swɔɔ, ʃwɔɔ, kawɔrə, lawa:re, suwe, trɛwɔrə, zwe,<br>ɖuwe, flugtwar, flwiɔ, flwir, awgũ, powku, owtru, aw, grawis, grew, grew, brewis,<br>brew, etɔwa, dewgadu, suʃiw, wiridem, dowɔ, tɔwɔ, k <sup>w</sup> attwor, kwatro, kwattro,<br>kwatru, kwatrə, kwat, kwatri, ʃinɔkwe, kwi, kwi, kwa, kwɛ:, kwando, kwɛðu, kwan,<br>kwand, kwant  |
| 9  | ɔ | zɔ, nɔjs, nɔʃ, vɔjs, vɔse, dɔnna, dɔnɔ, dɔne, ɔm, ɔmēj, ɔmɔ, ɔm, wɔmo, spɔza, əspɔzɔ,<br>spɔzo, əspɔs, sɔʃo, flɔ, sɔw, sɔɔ, sɔl, sɔlɔ, sɔlej, njɔly, fwɔko, fɔk, nɔm, nɔɪ, mɔrdere,<br>kɔnɛtɔ, kinɔh, dɔɔmiɔ, mɔri, vɔle, tɔɔdɔ, tɔrʃere, tɔrsɔ, lɔji:, kɔle, tɔ, pɔko, pɔk, kɔm,<br>kɔmē  |
| 10 | ɖ | ɖɪ, pjodɖa, kaliɖine, mandɖare, suɖe, kɔɖita:re, kuɖeta, nɛɖi:, mɛrɖere, mɛrɖe,<br>ɖaʃe:re, ɖere, ɖira:re, ɖira:, strindɛre, strindɛ, tɛrɖere, ʃterɖe, traɖe, impindɛre,<br>impindɛ, ɖettare, ɖete, ɖoka:re, ɖuwe, ɖuja:, skurɖe, kurɖe, ɖelare, ɖale, isendɖ<br>iar, grēɖi  |
| 11 | ɪ | ɖɪ, narɪs, isendɖiar   |
| 12 | j | jo, jew, nɔjs, vɔjs, femjɔ, femeje, mujere, mujere, uʃjel, fruɔt, fjo:re, jubja, pjodɖa, p<br>loje, ploaje, tjera, tjere, njɔly, njebla, nebbja, tinjeblas, sjel, θjelo, bjento, skujpa, kuj<br>da, ʃjamina, jake:re, jesi, ʃjade, tinji, esɔije, suja:, limpjar, jakta:re, lɔji:, joka:re, ɖu<br>ja:, gjattʃjare, fjammare, ɛsɔɔɔje, intʃendjare, isɛɔɔɔjar, majjorem, ampjo, kjen  |

## Appendix 4 - Segments used in the word list

|    |   |  |
|----|---|--|
| 13 | n | <p>no:s, nu, nos, no:i, nɔjs, nɔʃ, no, no:, noj, fe:mina, femmina, fəmine, domina, dɔnna, donə, dɔnə, dɔne, dɔamɔnə, hominem, hominē, infantem, infante, fante, nipo, nino, nenēj, nen, sponsa, sponsus, na:sus, ne, naso, na:so, nas, na:s, nas, nariθ, nariʃe, nar is, nəriʃ, na:rɪs, lu:na, lyn, luna, ʎunə, lɔn, lune, lunə, ka:li:ginem, kalina, kalidʒine, nebula, njɔly, njebla, nebbja, nəvwə, newlə, negurə, tene:braj, tə:nebre, tene:bras, t enəbɤ, tinjeblas, tɛ:nebre, tənebrəs, wentum, bjento, vɛnto, ben, vint, vint, annum, anno, ɛnu, an, no:men, nɔ̃, no:me, nomi, nomi, nɔm, nɔ̃, nɔŋ, nume, no:minem, nom bre, ling<sup>w</sup>a, lingwa, lɛngɛ, manduka:re, mandukar, mandʒare, minka, konspuere, ko gno:skere, kɔnɛtɤ, konoθer, konoffere, kunɛʃə, kinɔh, kunɔafte, pɛnsa:re, pensar, p ensare, pənsa, nata:re, nadar, nwotare, nadaɤ, nəðar, nəda, nada:, navigare, naʒe, nabegar, navigare, naviʒaɤ, nəviʒar, nəbəga, nəðʒi:, naviga:, naviga, ʃəmine, kami nar, kammina:re, kəmina, ʃimine, ʃʒamina, andar, andare, wen:re, vənɪɤ, benɪr, v eni:re, bəni, vini, veni, ekstendere, ekstender, estendere, əstendrə, ekstinde, sedent are, sentar, senta:, torna:re, tuɤne, tornar, tornare, toɤnaɤ, turnar, turna, tu:rne, to rna:, turna, tene:re, tənɪɤ, tener, tene:re, təni, tini, tinji, tsine, stringere, strindʒere, s tringe, strɛngi:, strindʒe, enxugar, impingere, impindʒere, impindʒe, lankea:re, lanθ ar, lanʃa:re, ʎənsa, lanci:, lanʃa:, ɛ:runka:re, arankaɤ, arronʃa:re, ko:nsuere, kontar, konta:re, konta:, ɛ:numera:re, enumɛɤe, enumerar, enumera:re, enumera, numara, ekspo:nere, spune, kanta:re, kantar, kənta, canta:, kinta, inglakia:re, ingetsa, inken dere, enθender, inʃɛndjare, ɪsɛndʒɪar, ənsendrə, inʃindʒe, omne:s, tantus, tanto, ta nt, tanc, alguno, alkuno, magnum, grandem, grande, grande, gran, grant, longum, longo, lungo, lunk, lung, anʃo, pɛ:sant, pesante, pezant, pittinus, pitʃino, pekenu, pikenu, putsin, angustus, angosto, angusto, minu:tus, mənɪ, menudo, minuto, mən ut, minu, minu:t, mərunt, u:num, uno, un, unu, k<sup>w</sup>i:nk<sup>w</sup>e, θinko, ʃinʃ, kjen, ʃine, k<sup>w</sup>ando:, kwando, kwan, kwand, kwant, kind, no:n, nɔ̃, no, non, nəw, nu, nek, ni, n e, nəj, nəj, nə</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, veste, sponsa, esposa, spɔz a, ispoza, əspɔzə, mari:tus, sponsus, esposo, spɔzo, ispozu, əspɔs, spo:s, sokius, sɔfɔ, sɔts, piskem, pɛs, pwasɔ, useɹ, passerem, passero, pasɛru, pasɛre, fru:ktus, 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, istrelɛ, əstɛl, stɔ:l, stɛle, stɛa, sa:lem, sɛl, sal, sale, saw, se, sa:l, sare, tene:bra:s, tinjeblas, tənebrəs, fumasɛ, 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, eskupir, əskupi, skujpa, sputere, es putar, sputare, spuda:, ski:re, sapere, savwaɤ, saber, sape:re, sabɤ, səber, səβɛ, sav ø:r, save:, kogno:skere, kopeseɤ, kuɹiser, koɹosi, pe:nsa:re, pāse, pensar, pensare, p ěsaɤ, pěsar, pānsa, pěse, peɹsa:, pəsa, ekstendere, ekstender, estendere, istĕdeɤ, əste ndrə, ekstinde, jesi, sede:re, swaɤ, ser, sedere, seɤ, sedentare, sentar, sĕtar, senta:, s ta:re, estar, əsta, ɛs, sta:, sta, ose, ałsa, ałsar, əlsa, hɔ:si:, turser, tɔrsə, segurar, siɖur aɤ, siɖurar, eksprimere, ekspremir, spremerɛ, əspremɔ, esprimi, skreme, serrere, se rar, seɤa, səraɤ, səra, serare, seɤe, serrare, siɤar, sere, stringere, estrepir, strindɖere, əstreɹə, stringe, strɛngi:, strindɖe, frisar, frəsa, ekstergere, estarsir, əstərzi, eksu:ka: re, esɖije, suwe, suja:, uska, pulsa:re, puse, pu:si:, pulsa:, pulsa, lāse, lĕsa, lĕsar, ɹəns a, ko:nsuere, koser, ɔqase, ekspɔ:nere, sporre, spune, ekskurrere, eskurir, skorrere, əskorə, skori:, skurɖɛ, glase, gləsa, ěsāɖje, ěsendɖjar, ěsĕɖjar, ənsendrə, ustula:re, us tolare, ustura, omne:s, to:tus, multus, tantus, paɹkus, alius, grawis, lurdus, pe:sant, pesaɔo, pesante, pittitus, pittinus, pitulus, kurtus, brewis, angustus, angosto, angus to, ĩngust, striktus, estreɹɔ, stretto, istrejtɹ, əstret, stɤø:, stɛt, strimt, minu:tus, de:l ika:tus, subti:lem, sutil, sottile, suɹfiw, suptil, su:ti, suti:l, subtsire, duo:s, dos, dojs, duas, duɤs, tre:s, tres, trɛs, sĕk, si:ku, siɹk, isi, k<sup>w</sup>is, si:k</p> |
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## Appendix 4 - Segments used in the word list

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|----|----|---|
| 15 | u  | nu, vu, bus, tu, usted, mulierem, muxer, мулех, мулер, муле, муі:р, mujere, epuz, mulier, muxer, мулех, мулер, муле, муі:р, mujere, mari:tus, maridu, mēriðu, spon sus, epu, ispozu, iſpozu, sokius, awikellum, utſello, useł, uſjel, paſeru, fru:ktus, f ruto, frutto, frute, frujt, frut, frukt, na:sus, soliculus, luna, luē, lunə, lune, lunə, p luwia, jubja, juvə, plužə, 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, sugaκ, sugar, cuca: suðe, konspuere, kuspiκ, kuſpir, eskupir, əskupi, skujpa, sputere, esputar, sp utare, spuda: kuņiser, kuņeſə, kuņəſte, kužitar, kužitar, kujda, kuðgeta, durmic, durmi, durmi:, muκiκ, muκer, muri, murit, muri, bula, zburā, lua, tuκne, turnar, tu rna, turna, turser, tumbar, tumba, tume, segurar, sigurak, siγurar, enxugar, affuga: re, ēfugar, ēfuyar, əfuga, suwe, suja:, uska, pulsa:re, puse, puxar, pufar, pulsa:, puls a, e:runka:re, aruŋka, ko:nsuere, kudκ, kuſi:re, kuzer, kuzi, kuzi, komputa:re, kumt a, e:numera:re, enumeκe, enumerar, enumera:re, enumera, numara, spune, ludir, x ugar, zuγar, zuga, dzuwe, dzuja:, zuka, flu:ktua:re, flugtwar, fluttuare, flutuak, flut uar, fluktua, fluctua, fluita:re, fluitare, fluere, fluir, fluire, flui, kule, kuar, kuła, ekskurrere, eskurir, iſkurer, skurðe, kurrere, kuκiκ, kuκer, kurðe, bruſfa:re, bruza:, ustula:re, ustolare, ustura, to:tus, tu, tutto, todū, toðu, dut, multus, mu, muſfo, mūj tu, mult, tantus, tētu, tētu, alguno, alkuno, əlgu, paκkus, powku, owtru, alius, mag num, longum, lungo, lōgu, lunk, lung, largum, larγu, largu, la:tum, latu, amplum, ē fu, lurdus, luκ, pezadu, pizaðu, pittitus, pittinus, pekenu, pikenu, putsin, pitulus, p iſful, kurtus, kuκ, kuκtu, kurtu, kurt, kurt, angustus, angusto, iŋgust, striktus, istr ejtu, iſtrejtu, minu:tus, menudo, minuto, miudu, miuðu, mənut, minu, mərunt, de:l ika:tus, dewgadu, deſyaðu, subti:lem, sutil, suſfiw, suptil, suti:l, subtsire, u:num, uno, un, uŋ, unu, duo:s, duaj, due, duas, duēs, duēſ, kwatru, patru, siku, ekkumhi:k, kw ēdu, komu, kum, nu |
| 16 | f  | nəf, vof, iſpoze, iſpozu, peſſe, pejfi, pejfi, peſ, peſte, nəriſ, iſtrele, juvə, trevəſ, kuſ pir, ſti, konoffere, kuņeſə, kuņəſte, ſəmine, maκſe, iſtēder, ſedəa, iſtar, altfa:, ſw aκ, iſprəmeκ, iſprəmer, əſtrižir, əſtrižir, iſfriγar, iſfriγar, ſterðe, affuga:re, ēfugar, ēfuyar, əfuga, pufar, ſāte, iſkoκeκ, iſkurer, ēſu, iſtrejtu, dojſ, duēſ, tref, ſi  |
| 17 | oj | noj, voj, froj, dojs, dojſ, doj   |
| 18 | v  | vu, vo:i, vɔjs, vof, vos, vo:, voj, vose, vɔse, voste, avi, avi, juvə, nəvwə, trevəſ, vā, v ento, vētu, vē, vint, vint, bevi, savwaκ, savø:r, save:, vivκ, vi:vere, viveκ, viver, vivi, via, naviga:re, navigare, naviγaκ, nəviγar, naviga:, naviga, vole, volare, voaκ, vwar, vole, zvola:re, zvola:, vəniκ, veni:re, viκ, vir, vini, viji:, veni, leva:re, ləve, levaκ, liv ar, leva:, viκe, virare, virar, lave, lava:re, ləvar, lava:, gκav, greve, gravi, gravi, grav, grevi, brève, brevi, brevi, vək, verde, verdi, vət, vək, vət, verde, vi   |
| 19 | b  | bos, bus, embra, fembra, ombre, abe, jubja, nebula, njebła, nebbja, tene:braj, tē:nebre, tene:bra:s, tenəbκ, tinjeblas, tē:nebre, tənebrəs, bjento, ben, nombre, limbə, bibere, bwak, beber, bere, bebeκ, biſer, bəwra, bə:κ, bevi, bəa, saber, sabek, səber, bibir, biw rə, nabegar, nəbəga, bolar, bula, zburā, ambita:re, benir, bəni, jebar, λəba, birar, bira, tōbe, tumbar, tōbaκ, tōbar, tumba, bκyle, bruſfa:re, bκu:le, bruza:, flābe, grabe, brew is, bκef, brebe, brève, brevi, brevi, brew, bκef, subti:lem, subtsire, berde, ibi:  |

## Appendix 4 - Segments used in the word list

|    |    |  |
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| 20 | t  | tu:, ty, tu, usted, voste, infanTEM, infante, fante, ifēti, marit:us, marito, marit, marit, mērit, mērit, mē:trem, pēste, utfello, fruk:tus, fruto, frutto, frutē, frujt, frut, frukt, stēlla, etwal, estreja, stella, istrelē, iftrelē, āstēl, stō:l, stēle, stēa, lāt, terra, tēx, tjera, terra, tēxē, tēxē, tērā, tē:x, tjere, tene:braj, tē:nebre, tene:bra:s, tenēbē, tinjeblas, tē:nēbre, trēvēf, tēnebrēs, fu:mā:ta, fumata, fuma:ta, fumate, wentum, bjento, vento, vētu, vint, vint, sputere, esputar, sputare, fti, kōnetē, kunqas:te, kō:gita:re, kođitare, kuzitaē, kuzitar, kuđeta, time:re, temer, teme:re, temēx, timer, temā, temi, teme, trēmere, tremē, tremare, tremēx, trimer, trima:, nata:re, nwotare, ambita:re, ekstendere, etādx, ekstender, estendere, istēdeē, iftēder, āstendrā, ekstinde, sedenta:re, sentar, sētar, senta:, sta:re, ētē, estar, iftar, āsta, sta:, sta, altia:re, altfa:, torna:re, tūxne, tornar, tornare, tōxnaē, turnar, turna, tūrne, torna:, turna, tork <sup>w</sup> :ere, tōxdk, tōθer, tōrfere, turser, tōrsā, tōarfe, tōbe, tumbar, tōbaē, tōbar, tumba, tume, tene:re, tēniē, tener, tene:re, tēx, ter, tēni, tini, tinji, appekto:re, apretar, ēpirtar, stringere, etēdx, estrepi:, strindgere, āftrizir, āftrizir, āstrepi:, stringe, strēngi:, strindge, friktare, fōte, frotar, frettare, tergere, terđere, ekstergere, estarsir, āstārzi, fterđe, tira:re, tīxē, tirar, tira, tire, tira:, trahere, tēxē, trarre, traze, trēzer, trēwra, traj, trađe, jakta:re, zōte, đettare, zejtar, xita, đete, apta:re, atar, etar, komputa:re, kōte, kontar, konta:re, kōtar, kumta, kōte, konta:, kanta:re, fāte, kantar, kētar, kēta, fāte, canta:, kīnta, flu:ktua:re, flyktqe, flugtwar, fluttuare, flutuāē, flutuar, fluktua, fluctua, fluita:re, fluitare, gjatfjare, ustula:re, ustolare, ustura, to:tus, tu, todo, tutto, todū, tōdu, tot, tō, dut, multus, molto, mūjtu, mult, tantus, tanto, tētu, tētu, tant, tanc, alter, otē, otro, altro, owtru, altrā, ōt, altri, alt, grant, lātum, lato, latu, lat, pe:sant, pesante, pēzat, pezant, pittitus, pēti, pētit, piti, pittinus, pitfino, pitulus, kurtus, korto, korto, kuētu, kurtu, kurt, kurt, angustus, angosto, angusto, ingust, striktus, etēwa, estrefo, stretto, istrejtū, iftrejtū, āstret, stōx, stret, strimt, minu:tus, minuto, mēnut, minu:t, mērun:t, de:lika:tus, delikato, dēlikat, subtilē, sutil, sottile, suptil, suti:, suti:l, vērt, vērt, tre:s, tēwa, tres, tre, tref, tres, trō:, tre:, trej, k <sup>w</sup> attwor, katē, kwatro, kwattro, kwatru, kwatrā, kwat, kwatri, patru, kwant, fjemu:t, et |
| 21 | u: | tu:, u:hē:, fruk:tus, lu:na, plu:x, fu:mā:ta, fu:k, su:gere, tūrne, eksu:ka:re, pu:si:, lu:dere, flu:ktua:re, bēu:le, ku:x, minu:tus, minu:t, du:ze:, su:ti, u:num, fjemu:t  |
| 22 | y  | ty, fry, lyn, njoly, fyme, syse, sysi:, kōspyē, gyra:re, flyktqe, flye, bēyle, mēny  |
| 23 | d  | usted, domina, dam, dōna, dōnna, donē, dōnā, dēm, dōne, dōamnā, maridu, mā:dre, pjoddga, komedere, manduka:re, mandukar, morde:re, mōxdk, mōrdere, mōxdkē, mwardi, spuda:, kūide, kwidar, kujda, kēēdk, dormi:re, dōxmiē, dormir, dōxmiē, durmir, durmi, dwaxmi, durmi:, dormi, nadar, nadaē, nēda, nada:, andar, andare, ēdaē, ēdar, ekstendere, etādx, ekstender, estendere, istēdeē, iftēder, āstendrā, ekstinde, sedere, sedere, sedga, sedenta:re, tōxdk, kadere, kade:re, fjade, kēda, epēēdk, etēēdk, limpida:re, kudē, di:kere, diē, deθir, di:re, dizer, di, di:x, di:, lu:dere, ludir, arde:re, aēdk, arder, ardere, aēdkē, ērder, arde, inkendere, ēsādje, enθender, infjendjare, īsēdjar, ānsendrā, infjindze, todo, todū, dut, grandem, grande, grande, grēdi, lurdus, lerdo, lordo, pezadu, menudo, miudu, de:lika:tus, du:ze:, delyađo, delikato, dewgadu, dēlyāđu, dēlikat, wiridem, berde, verde, verdi, verde, duo:s, dō, dos, dojs, dojf, dō:, doj, duaj, due, dowā, duas, duēs, duēf, 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

|    |    |  |
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| 24 | f  | fe:mina, fam, femmina, femeə, femjə, fembra, fœm, fəmine, femeje, infantem, ãfã, infante, fante, ifẽfi, ifẽti, efã, fruktus, fɤqi, fruto, frutto, frutə, frujt, fry, frut, f rukt, flo:rem, flœɤ, flor, fjo:re, floɤ, flɔ, flø:ɤ, flo:r, flɔare, fu:ma:ta, fyne, fumata, fuma:ta, fumasə, fumate, fokum, fə, fwego, fwəko, fogu, foyu, fɔk, fə, fu:k, fok, frika:re, fɤje, fregar, frega:re, frəga, froj, frea, freka, iffrigar, iffriyar, frikta:re, f ɤote, frotar, frettare, frisar, frəsa, flu:ktua:re, flyktɥe, flugtwar, fluttuare, flutuaw, flutuar, fluktua, fluctua, fluita:re, fluitare, fluere, flye, fluir, fluire, flwiɤ, flwir, flui, flamma:re, flãbe, flamear, fjammar, flama, flagra:re, flagɤe, flagrar, flagrar e, flagɤaw, flagrar, bɤef, bɤef   |
| 25 | e: | fe:mina, stella, tene:braj, tene:bras, morde:re, sape:re, save:, pe:nsa:re, time:re, tem ere, jake:re, ɟaɟe:re, sede:re, tork <sup>w</sup> e:re, kade:re, tene:re, tene:re, e:runka:re, e:nu me rare, arde:re, omne:s, pe:sant, de:lika:tus, du:ze:, tre:s, tre:   |
| 26 | m  | fe:mina, fam, embra, femmina, femeə, femjə, fembra, fœm, fəmine, femeje, mulier em, muxer, mołle, mułeɤ, mułer, mułe, mui:r, mujere, domina, dam, dœm, doam nə, hominem, ɔm, ombre, omẽj, ɔmẽj, ɔmə, ɔm, om, homo:, wəmo, hominẽ, om, infa ntem, mulier, muxer, mołle, mułeɤ, mułer, mułe, mui:r, mujere, mari:tus, maɤi, mariɔ, marito, maridu, məriɔu, marit, mari:t, mərit, ma:trem, meɤ, maɔre, ma:dre, mũj, maɔə, mer, mɔri, piskem, awem, awikellum, passerem, flo:rem, so:lem, lakum, mare, meɤ, mar, maɤ, mar, meɤ, mar, sa:lem, ka:li:ginem, fu:ma:ta, fyne, fumata, f uma:ta, fumasə, fumate, kajlum, wentum, fokum, annum, no:men, no:me, nomi, n omi, nɔm, nume, no:minem, nombre, limbə, komedere, komer, kome, kumer, mand uka:re, mãze, mandukar, mandzare, mẽzaw, mẽzar, mɔɤza, mari:, maɤja:, minka, m orde:re, moɤdɤ, moɔder, mɔrdere, moɤdeɤ, murɔer, mwardi, morsika:re, moskar, m orsikare, musəga, musəgar, musəya, murseka, time:re, temer, teme:re, temɤ, timer, temə, temi, teme, tremere, tremer, tremare, tremɤ, trimer, trima:, dormi:re, dɔɤmiɤ, dormir, dɔɤmiɤ, durmir, durmi, dwaɤmi, durmi:, dormi, mori:, muɤiɤ, moɤir, mori: re, moɤeɤ, muɤer, muri, mɔri, muri:, muri, fəmine, kaminar, kammina:re, kəmiɤaw, kəmiɤar, kəmina, ɟimine, ɟjamina, maɤse, ma:ɤfi:, mergere, mɔɔɔere, mɔɔe, amb ita:re, tumbar, tumba, tume, eksprimere, ekspremir, spremer, ifprəmeɤ, ifprəmer, əspremə, esprimi, skreme, limpida:re, limpjar, impingere, impindɔere, əpɤɤə, imp indɔe, komputa:re, kumta, e:numerare, enumeɤe, enumerar, enumerare, enumera, numara, krema:re, kɤame, kemaɤ, kremare, kəjmare, kəjmaɤe, krəma, flamma:re, f lamear, fjammar, flama, omne:s, multus, mu, muɟo, molto, mũjtu, mol, molc, mul t, magnum, maɤo, maɤɤo, grandem, majjorem, mare, longum, largum, la:tum, amp lum, ampjo, amplə, strimt, minu:tus, mənɤ, menudo, minuto, miudu, miuɔu, mənut, minu, minu:t, mərunt, subtil:em, wiridem, u:num, ekkumhi:k, k <sup>w</sup> em, k <sup>w</sup> o:modo, kɔm, komo, kome, komu, kɔmẽ, ɟemu: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, maʁi, mariðo, marito, maridu, marit, mari:t, maðre, marə, pwasō, awem, abe, avi, avi, aw, awikellum, wazo, passe rem, paxaro, passero, paseru, pasəre, naso, nas, nas, nariθ, nariʃe, naris, lu:na, luna, ste:lla, etwal, estreja, stella, ak<sup>w</sup>a, aʁwa, akkwa, agwə, age, apə, pluwia, jubja, pjo dɕa, lakum, lak, lago, lago, lagu, layu, ʎak, mare, mar, maʁ, mar, sal, sale, saw, sar e, terra, tjera, terra, tsarə, kalina, kalidʒine, kalizēj, nebula, njebla, nebbja, tinjeblas, fu:mata, fumata, fuma:ta, fumasə, fumate, kajkia, annum, aʁo, anno, aʁ, aʁ, an, li ng<sup>w</sup>a, lengwa, lingwa, mandukare, mandukar, mandɕare, mēʒaʁ, mēʒar, məʁza, m aʁi:, maʁja:, minka, mwardi, moskar, morsikare, musəga, musəgar, musəʁa, murse ka, sugaʁ, sugar, skujpa, esputar, sputare, sapere, savwaʁ, saber, sape:re, sabəʁ, sa vø:ʁ, save:, kwidar, koɕitare, kuzitaʁ, kuzitar, kujda, kuɕeta, pensar, pensare, pēs aʁ, pēsar, pənsa, pəsa, tremare, dwaʁmi, via, nata:re, nadar, nwotare, nadaʁ, nəðar, nəða, nada:, naviga:re, naze, nabegar, navigare, naviʁaʁ, nəviʁar, nəbəga, naviga:, naviga, bolar, volare, voaʁ, vwar, bula, zburā, kaminar, kammina:re, kəmiʁaʁ, kəmi ʁar, kəmina, ʃjamina, maʁʃe, ambita:re, andar, andare, ēdaʁ, ēdar, jake:re, jaθer, ɕaʃe:re, zawrə, swaʁ, sentar, sētar, estar, iʃtar, əsta, sta, jebar, lewaʁ, liʁar, ʎəba, l ua, altia:re, alθar, altsare, aʃsa, aʃsar, əlsa, alʃa:, tornar, tornare, toʁnaʁ, turnar, tu rna, turna, xirar, zirar, zira, birar, virar, bira, kadere, ʃwaʁ, kaer, kade:re, kawrə, ʃ jade, tumber, tōbaʁ, tōbar, tumba, segurar, siguraʁ, siʁurar, serar, seʁa, səraʁ, səra, serare, θerar, serrare, siʁar, appektora:re, apretar, epiʁtar, fregar, frəga, frea, freka, iʃfrigar, iʃfriʁar, frotar, frettare, frisar, frəsa, lawa:re, lave, laʃar, lava:re, ləʁar, l ava:, la, estarsir, enxugar, affuga:re, ēʃugar, ēʃuʁar, əʃuga, uska, limpjā, lipar, tirar, ʃʃira, tira, puxar, puʃar, pulsa, trahere, trarre, traze, traɕe, jaktare, eʃar, ɕettare, zejtar, xita, lankea:re, lanθar, lanʃa:re, lēsa, lēsar, ʎənsa, lanci:, lanʃa:, arankar, ar ronʃa:re, aruŋka, legar, ʎiʁa, lega, apta:re, atar, ɐtar, kontar, kōtar, kumta, enumer ar, enumera, numara, kanta:re, kantar, kētar, kənta, cantar, kinta, xugar, zogəʁ, zu ʁar, zuga, zuka, flugtwar, fluttuare, flutuəʁ, flutuar, fluktua, fluctua, fluitare, ko lar, koaʁ, kuar, kuʃa, elar, ɕelare, zilar, zəla, ɕale, glakia:re, glase, gʁatʃjare, gləsa, glatʃa:, inglakia:re, ingetsa, kʁame, kəmar, kremare, kəjmare, kejməʁe, kʁəma, fla mma:re, flamear, fjammare, fʎama, ardere, aʁdɕ, arder, ardere, aʁdɕ, arde, flagr a:re, flagʁe, flagrar, flagrare, flagʁaʁ, flagrar, intʃendjare, isendʒar, isēdjar, ustola re, ustura, tantus, tanto, tant, tanc, alguno, alkuno, awgū, aʃgū, alter, altro, altrə, a ltri, alt, alius, aw, aʃ, magnum, maʁo, maʁno, grandem, grande, grande, gran, gran t, mare, largum, laʁʒ, laʁʁo, largo, laʁgu, largu, ʎark, lark, larg, lato, latu, lat, amp lum, antʃo, ampjo, amplə, grawis, gʁav, grabe, gravi, gravi, grav, pe:sant, pesaðo, pe sante, pezadu, pizaðu, pəzat, pezant, angustus, angosto, angusto, etʁwa, delyaðo, d elikato, dewgadu, deʃyaðu, dəlikat, duas, k<sup>w</sup>attwor, katʁ, kwatro, kwattro, kwatru, kwatrə, kwat, kwatri, patru, aki, la, aja, əʎa, ai, kwa, k<sup>w</sup>ando:, kwando, kwan, kw and, kwant</p> |
|----|---|--|

## Appendix 4 - Segments used in the word list

|    |   |   |
|----|---|---|
| 28 | r | embra, fembra, muxer, mułer, ombre, muxer, mułer, mariðo, maridu, mēriðu, mari t, maðre, marə, paxaro, pasəru, pasəre, fruto, frutə, frujt, flor, fjo:re, floare, nariθ, naris, nērif, sqare, estreja, istrelə, iftrelə, mar, trēvəf, tənēbrəs, ʃer, nombre, beber, bere, biβer, bəwrə, komer, kumer, mandukar, mandžare, mēžar, morðer, murðer, mo skar, morsikare, sugar, kufpir, eskupir, esputar, sputare, saber, səber, konothər, kup iser, kwidar, kuzitar, pensar, pensare, pēsar, temer, timer, tremər, tremək, trimer, d ormir, durmir, bibir, viver, biwrə, morir, mułer, muri, nadar, nwotare, nēðar, nabe gar, nēviyar, bolar, volare, vwar, zvola:re, zbura, kaminar, kammina:re, kēminar, a ndar, ēdar, benir, veni:re, vir, ekstender, iftēder, əstendrə, jaθer, dʒaʃe:re, zəzer, za wrə, ser, sentar, sētar, estar, iftar, jebar, livar, alθar, ałsar, tornar, turnar, xirar, dʒi ra:re, zirar, zira, birar, virar, bira, torθer, kaer, kade:re, kēir, tumber, tōbar, tēner, tene:re, ter, segurar, sigurak, siyurar, ekspremir, əspremə, serar, sərar, θerar, sivar, apretar, epirtar, estrepir, əstrepa, fregar, frəga, iffrigar, iffriyar, frotar, frisa r, frəsa, laβar, ləvar, estarsir, enxugar, ēfugar, ēfuyar, limpjar, līpar, tirar, ʃira, tira, puxar, pufar, traze, trəzer, trəwrə, efar, zejtar, lanθar, lēsar, arankar, aruŋka, legar, atar, ɛtar, koser, kuzer, kontar, kōtar, enumerar, enumera, deθir, dizer, kantar, kēt ar, ludir, xugar, zuyar, flugtwar, flutuar, fluir, flwir, kolar, kuar, eskurir, ifkurer, skurdže, korer, kułer, kurdže, elar, zilar, kemar, kējmare, flamear, arder, ɛrder, arde, flagrar, flagrar, enθender, isenđjar, isēdjar, ənsendrə, otro, owtru, altrə, grande, gr ēđji, grēdi, mare, larɣo, largu, ʎark, grabe, gravi, gravi, grew, grew, lerdo, korto, ku rtu, kurt, brebe, brevi, brevi, brew, estrefjo, istrejtu, iftrejtu, əstret, berde, verdi, ɛrt, verde, tres, tref, kwatro, kwatru, kwatrə |
| 29 | v | femeə, femjə, done, ifpoze, mēriðu, pasəru, frutə, nērif, luə, istrelə, iftrelə, agwə, ʃ uvə, təkə, təkə, kəlizēj, nēvwə, trēvəf, fumasə, ɛnu, līgwe, səber, nēðar, nēviyar, k ēminar, kēminar, zəzək, zəzer, kēir, epirtar, ləvar, trəzer, ɛtar, ɛrder, duəs, duəf, ɛk i, ɛi   |
| 30 | œ | fœm, dœm, flœk  |
| 31 | ε | fəmine, efã, pəs, pəhō, utʃello, utʃjel, əstəl, stele, mək, sel, terra, təkə, tərə, tjere, nēv wə, tənək, trēvəf, sjel, ʃelo, səw, sel, vento, lənge, bəwrə, səβe, kənək, kuneɟə, neɟ i, mərɟere, estendere, ɛk, ɛs, sprəmere, sere, əstrepa, strengi, tərɟere, tək, trəwrə, əmpərə, ɟete, inʃendjare, greve, grevi, bək, breve, brevi, brevi, əstret, stret, deɟað u, ɛrt, vək, ɛrt, tres, kɛ, ɛ   |

## Appendix 4 - Segments used in the word list

|    |   |  |
|----|---|--|
| 32 | l | mulierem, mulier, awikellum, uttfello, uffjel, 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, lun e, lunā, ste:lla, etwal, stella, istrelē, iftrele, əstēl, stō:l, stele, 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, newlā, tinjeblas, k ajlum, sjel, θjelo, ʃelo, sel, ʃi:l, ling <sup>w</sup> a, lāg, leŋgwa, lingwa, liḡwē, lēu, lēngē, limbā, wola:re, vole, bolar, volare, bula, vōle, zvola:re, zvola:, leva:re, lōve, levax, livar, le va:, lua, altiare, alθar, altsare, əlsa, altʃa:, lawa:re, lave, laβar, lavare, ləvar, lava:, l a, limpidare, limpjar, lipar, pulsa:re, pulsa:, pulsa, lankea:re, lōse, lanθar, lanʃa:re, lēsa, lēsar, lanci:, lanʃa:, liga:re, lie, legar, lega:re, lōji:, lea:, lega, lu:dere, ludir, fluk tua:re, flyktqe, flugtwar, fluttuare, flutuax, flutuar, fluktua, fluctua, fluitare, flu itare, fluere, flye, fluir, fluire, flwix, flwir, flui, ko:lare, kule, kolar, kolare, kōle, gela:re, zōle, elar, dželare, žilar, žōla, džale, glakia:re, glase, glōsa, glaʃa:, inglakia:re, bōyle, bōu:le, flamma:re, flābe, flamear, flagrare, flagxē, flagrar, flagrare, flagxax, flagrar, ustula:re, ustolare, multus, molto, mol, molc, mult, alguno, alkuno, əlgu, al ter, altro, altrā, altri, alt, alius, longum, lō, longo, lungo, lōgu, lō, lunk, lung, largu m, laxž, laryō, largo, laxgu, largu, lark, larg, la:tum, le, lato, latu, lat, amplum, āpl, amplā, lurdus, lūx, lerdo, lordo, pitulus, pikkolo, piʃul, de:lika:tus, delyađo, delika to, dēlikat, subti:lem, sutil, sottile, suptil, suti:l, illa:k, la   |
| 33 | r | mulierem, muir, mujere, mulier, muir, mujere, mari:tus, marito, mari:t, mērit, ma: trem, ma:dre, mōri, passerem, passero, fru:ktus, frutto, frut, frukt, flo:rem, flo:r, n ariʃe, na:ris, soreli, mare, mar, mar, sare, terra, tjera, tēra, tjere, tsarā, negurā, tene:braj, tēnebre, tene:bra:s, tēnebre, bibere, komedere, manduka:re, morde:re, mō rdere, mwardi, morsika:re, morsikare, musəgar, murseka, su:gere, konspuere, spute re, skire, sapere, sape:re, kogno:skere, konoffere, ko:gita:re, kođitare, pe:nsare, ti mere, temere, tremere, tremare, trima:, dormi:re, durmi, durmi:, dormi, wi:were, v i:vere, mori:, morire, muri:, muri, nata:re, navigare, navigare, wola:re, mergere, me rđere, merđe, ambitare, andare, weni:re, ekstendere, estendere, jake:re, džere, sed ere, sedere, sedenta:re, stare, leva:re, altiare, altsare, torna:re, tornare, turna, turn e, torna:, turna, gyra:re, džira:re, džira:, vira:re, tork <sup>w</sup> e:re, tōrʃere, turser, tōrsā, tōar ʃe, kadere, kawrā, tene:re, eksprimere, sprēmere, isprēmex, isprēmer, esprimi, skr eme, serrere, serar, sēra, serare, θerar, serrare, appektora:re, stringere, strindžere, ə ʃtrīžir, əʃtrīžir, stringe, strengi:, strindže, frika:re, frega:re, froj, frea, freka, frikta: re, frettare, frisar, lawa:re, lava:re, tergere, terđere, ekstergere, əstərzi, ʃterđe, ek su:ka:re, affugare, limpidare, tira:re, tire, tira:, pulsa:re, trahere, trarre, traj, trađe, impingere, impindžere, jakta:re, džettare, lankea:re, lanʃa:re, e:runka:re, arankar, ar ronʃa:re, liga:re, lega:re, apta:re, ko:nsuere, kuʃi:re, komputa:re, konta:re, e:numer are, enumera:re, numara, di:kere, di:re, eksponere, sporre, kanta:re, lu:dere, joka:re, džoka:re, flu:ktua:re, fluttuare, fluita:re, fluitare, fluere, fluire, ko:lare, kola:re, ek skurrere, eskurir, skorrere, əskorā, skori:, kurrere, korer, korrere, korā, kori, gela:re, dželare, glakia:re, gjatʃjare, inglakia:re, bruʃa:re, bruza:, kremare, kremare, krēma, flamma:re, fjammare, arde:re, ardere, flagrare, flagrare, inkendere, inʃendjare, us tula:re, ustolare, ustura, alter, altro, altri, grandem, grande, gran, grant, majjorem, largum, largo, lark, larg, grawis, greve, grav, grevi, lurdus, lordo, kurtus, korto, ku rt, brewis, breve, striktus, stretto, stret, strimt, mērunt, subtsire, wiridem, verde, ve rt, tre:s, tre, tres, trō:, tre:, trej, k <sup>w</sup> attwor, kwattro, kwatri, patru |
| 34 | x | muxer, muxer, paxaro, xirar, enxugar, puxar, xita, xugar   |

## Appendix 4 - Segments used in the word list

|    |    |   |
|----|----|---|
| 35 | λ  | moλλe, muλeκ, muλeγ, muλε, moλλe, muλeκ, muλeγ, muλε, useλ, λunə, λak, λəba, λənsa, λiγa, λoη, λark, əλa  |
| 36 | κ  | muλeκ, muλeκ, maκi, meκ, fκqi, flœκ, floκ, flø:κ, plu:κ, meκ, maκ, meκ, teκ, tekə, tē<br>κe, tē:κ, tenēbκ, si:κ, bwak, bebeκ, bø:κ, mēzav, moβdκ, moβdek, sugav, kuspiκ, savv<br>av, sabek, kənētκ, kopeseκ, kuzitav, pēsav, temek, kvēdκ, tremek, dōvmiκ, dovmiκ,<br>dwaκmi, vivκ, viveκ, muviκ, mokeκ, mukeγ, nadaκ, naviγav, voav, kēmiπav, mavse,<br>ēdav, vāniκ, viκ, etādk, istēdek, zeziv, zēzek, swav, sek, etκ, levav, tuvne, toκnav, zi<br>κe, vike, tōvdκ, fκav, tōbav, tēniκ, tek, siγurav, epēdk, iɟprəmek, seka, seke, siκav,<br>etvēdk, fκeje, fκote, tike, tκek, kudκ, enumeke, diκ, di:κ, zogav, flutuav, flwiκ, koav,<br>iɟkoek, kuviκ, koek, kukeγ, bκyle, bκu:le, kκame, kejmave, aκdκ, aκdek, flagke, fl<br>agvav, otκ, gṽā, gṽā, lakz, lakgu, gκav, luk, kuκ, kuκtu, ku:κ, bκef, bκef, etκwa, stκø:<br>vek, vek, tκwa, katκ |
| 37 | i: | mui:r, muir, mari:tus, mari:t, ka:li:ginem, si:κ, ʃi:l, ma:pi:, sysi:, ski:re, dormi:re, du<br>rmi:, wi:were, vi:vere, mori:, mori:re, muri:, nēdʒi:, ma:rʃi:, weni:re, veni:re, viji:, hɔ:<br>si:, strengi:, pu:si:, lanci:, lɔʒi:, kuʃi:re, di:kere, di:re, di:κ, di:, skori:, subti:lem, suti:l,<br>kʷi:nkʷe, ekkumhi:k, ibi:, ki:, si:k   |
| 38 | ɲ  | dona, niɲo, aɲo, aɲ, mənza, ma:pi:, kopeseκ, kupiser, koposi, kēmiπav, kēmiπav, viɲ<br>i:, estreɲi:, əstreɲə, əmpreɲə, opɲi, maɲo, maɲɲo, pekeɲo  |
| 39 | qɑ | dɔamɲə, flɔare, sɔare, plɔaje, kunɔafte, tɔartʃe, ɔɔase   |
| 40 | h  | hominem, homo:, hominē, pēhō, u:he:, kinɔh, hɔ:si:, trahere, ekkumhi:k  |
| 41 | ēj | omēj, ɔmēj, nenēj, kalizēj, kēj, nēj  |
| 42 | õ  | õ, nõ, kõspye, lõ, nõ   |
| 43 | ē  | hominē, vētu, vē, pēsav, pēsar, kvēdκ, istēdek, iɟtēder, sētar, ēɟugar, ēɟuγar, īsēdjar,<br>sēk, nē   |
| 44 | ā  | āfā, vā, ā, lāg, māze, pāse, etādk, lāse, ɟāte, flābe, ēsādje, āpl, pəzā  |
| 45 | ī  | īfēʃi, īfēti, līgwe, əɟtrīzɪr, əɟtrīzɪr, līpar, īsendʒɪar, īsēdjar, sīku  |
| 46 | ē  | īfēʃi, īfēti, mēzav, mēzar, ēdav, ēdar, lēsa, lēsar, kētar, tētū, tētū, grēdʒi, grēdi, ēɟu,<br>kwēdu, nēw   |
| 47 | ʃ  | īfēʃi, sɔʃo, utʃello, utʃjel, nariʃe, ʃeafə, ʃelo, ʃi:l, ʃer, ʃimine, ʃjamina, ma:rʃi:, dʒ<br>aʃe:re, zəʃea, tɔʃere, tɔartʃe, ʃe:ɹ, ʃjade, ʃira, etʃar, lanʃa:re, lanʃa:, arrontʃa:re, k<br>utʃi:re, ziʃe, ʃāte, ɟatʃjare, glaʃa:, brutʃa:re, inʃendjare, inʃindze, muʃo, anʃo, pit<br>ʃino, piʃul, estretʃo, suʃiw, ʃiŋkwe, ʃiŋk, ʃintʃ, ʃe, ʃemu:t  |
| 48 | i  | īfēti, iɟpozə, iɟpozu, pejʃi, avi, iɟtrelə, vint, nomi, biβer, minka, kupiser, timer, tri<br>mer, naviγav, neviγar, iɟtar, livar, siγurav, siγurar, siκav, epirtar, strindʒe, iɟfriγar,<br>iɟfriγar, impindʒe, kinta, zilar, ingetsa, inʃindze, grēdi, gravi, pizaðu, pikenu, brevī,<br>ingust, iɟtrejtu, strimt, verdi, ki, kind   |
| 49 | ā  | efā, ā, ʃāte, gṽā, gṽā, kā  |

## Appendix 4 - Segments used in the word list

|    |    |   |
|----|----|---|
| 50 | p  | sponsa, epuz, esposa, spɔza, ispoza, ifpoze, əspɔzə, sponsus, epu, esposo, spɔzo, ispo zu, ifpozu, əspɔs, spo:s, piskem, peθ, peʃfe, pejfi, pejfi, peʃ, pɛs, peʃte, pwasō, pɛhō, passerem, paxaro, passero, paseru, pasəre, apə, pluwia, plɔi, pjodɕa, pluʒə, plu:ʁ, p loje, plɔaje, konspuere, kɔspyɛ, kuspiʁ, kuspiʁ, eskupiʁ, əskupi, skujpa, sputere, esp utar, sputare, spuda:, sapere, sape:re, pe:nsa:re, pāse, pensar, pensare, pēsax, pēsar, pānsa, pēse, peŋsa:, pāsa, esprimere, ep̄ēdɐ, ekspremir, spremere, ifprēmɐ, ifprə mer, əspremā, esprimi, appektora:re, apretar, epirtar, limpida:re, limpjar, līpar, pul sa:re, puse, puxar, pufar, pu:si:, pulsa:, pulsa, impingere, impindɕere, əmpɛɲə, impi ndɕe, apta:re, komputa:re, ekspo:nere, sporre, spune, paʁkus, pø, poko, pɔko, powku, pɔk, pō, po:k, amplum, āpl, ampjo, amplə, pe:sant, pəzā, pesađo, pesante, pezadu, pi zađu, pəzat, pezant, pittitus, pəti, pətit, piti, pittinus, pekeɲo, pitʃino, pekenu, pik enu, putsin, pitulus, pikkolo, piʃful, suptil, patru  |
| 51 | z  | epuz, spɔza, ispoza, ifpoze, əspɔzə, spɔzo, ispozu, ifpozu, wazo, zvola:re, zvola:, zbu ra, zeziʁ, zɛzɛʁ, zɛzɛr, zəʃɛa, traze, trɛzɛr, kuzer, kuzi, kɔ:z, kuzi, dizer, ziʃe, bruza:, pəzā, pezadu, pizađu, pəzat, pezant  |
| 52 | ð  | maridō, mɛriđu, maðre, morðer, murðer, neðar, toðu, pesađo, pizađu, miuđu, deʎa ðo, deʎađu  |
| 53 | k  | sokius, piskem, awikellum, fru:ktus, frukt, akkwa, lakum, lak, ʌak, ka:li:ginem, ka lina, kalidɕine, kalizɛj, kɛlizɛj, kajkia, kajlum, fokum, fwɔko, fɔk, fu:k, fok, komed ere, komer, kome, kumer, manduka:re, mandukar, minka, morsika:re, moskar, mor sikare, murseka, konspuere, kɔspyɛ, kuspiʁ, kuspiʁ, eskupiʁ, əskupi, skujpa, ski:re, kogno:skere, kɔnɛtɐ, konoθer, konoffere, kɔnesɐ, kupiser, kunɛfə, kinɔh, koposi, kunɔafte, ko:gita:re, kɔide, kwidar, koɕitare, kuzitaʁ, kuzitar, kujda, kuɕeta, kɛē dɐ, kaminar, kammina:re, kɛmɔnaʁ, kɛmɔnar, kəmina, ekstendere, ekstender, eksti nde, jake:re, kadere, kaer, kade:re, kɛir, kawrə, kəɕə, esprimere, ekspremir, skre me, appektora:re, frika:re, freka, frikta:re, ekstergere, eksu:ka:re, uska, jakta:re, la nkea:re, erunka:re, arankar, aruŋka, ko:nsuere, kudɐ, koser, kuʃi:re, kuzer, kuzi, k ɔ:z, kuzi, komputa:re, kōte, kontar, konta:re, kōtar, kumta, kōte, konta:, di:kere, ek spo:nere, kanta:re, kantar, kētar, kənta, kinta, joka:re, ɕoka:re, zuka, flu:ktua:re, fl yktɕe, fluktua, ko:la:re, kule, kolar, kola:re, koax, kuar, kuʌa, kɔle, eskurrere, esk urir, skorrere, ifkɔvɐ, ifkurer, əskorə, skorit, skurɕe, kurrere, kuʁiʁ, korɛr, korre re, kɔvɐ, kurer, korə, kori, kurɕe, glakia:re, inglakia:re, kremare, kɔame, kemar, kremare, kɛjmare, kɛjmaɐ, krəma, inkendere, okœ, alkuno, paʁkus, poko, pɔko, p owku, pɔk, po:k, lunk, ʌark, lark, pekeɲo, pekenu, pikenu, pikkolo, kurtus, kuʁ, ko rto, korto, kuʁtu, kurtu, kurt, ku:ʁ, kurt, striktus, de:lika:tus, delikato, dəlikat, katɐ, kwatro, kwattro, kwatru, kwatrə, wat, kwatri, sɛk, θinko, ʃiŋkwe, siku, siŋk, ʃiŋ k, ekkumhi:k, aki, kwi, eki, illa:k, ki, ki:, kwi, kjen, kɛj, kɛj, kwa, ke, ki, kɛ, kwɛ:, kā, kwando, kwēdu, kwan, kwand, kwant, kind, kɔm, komo, kome, komu, kɔmē, kum, nek, si:k |
| 54 | ts | sots, tsarə, altsare, tsine, inɕetsa, putsin, subtsire  |

## Appendix 4 - Segments used in the word list

|    |                |  |
|----|----------------|--|
| 55 | a:             | ma:trem, ma:dre, na:sus, na:so, na:s, na:rɪs, la:t, ma:r, sa:lem, sa:l, ka:li:ginem, tene:b<br>ra:s, fu:ma:ta, fuma:ta, manduka:re, maɲja:, morsika:re, cuca:, spuda:, ko:gita:re, pe:<br>nsa:re, peɲsa:, trima:, nata:re, nada:, naviga:re, naviga:, wola:re, zvola:re, zvola:, ka<br>mmina:re, ma:rʃi:, ambita:re, sedenta:re, senta:, sta:re, sta:, leva:re, leva:, altia:re, alt<br>fa:, torna:re, torna:, gyra:re, dʒira:re, dʒira:, vira:re, appekto:re, frika:re, frega:re, fr<br>ikta:re, lawa:re, lava:re, lava:, eksu:ka:re, affuga:re, suja:, limpida:re, tira:re, tira:, pu<br>lsa:re, pulsa:, jakta:re, lankea:re, lanʃa:re, lanʃa:, e:runka:re, arronʃa:re, liga:re, leg<br>a:re, lea:, apta:re, komputa:re, konta:re, konta:, e:numera:re, enumera:re, kanta:re, c<br>anta:, joka:re, dʒoka:re, dʒuja:, flu:kтуа:re, fluita:re, kola:re, kola:re, gela:re, glakia:re,<br>glatʃa:, inglakia:re, brutʃa:re, bruza:, krema:re, flamma:re, flagra:re, ustula:re, la:tum,<br>de:lika:tus, illa:k |
| 56 | ẽj             | mẽj, kɛlizẽj, kẽj, nẽj   |
| 57 | r              | mɛr, frɪ, savø:r, mɔri, ma:rʃi:, ʃɛ:r, sɛraɪ, sɛre, ɪʃkurer  |
| 58 | ɒ              | mɒri   |
| 59 | θ              | peθ, nariθ, θjelo, konoθer, jaθer, alθar, torθer, θerar, lanθar, deθir, enθender, θinko  |
| 60 | ej             | pejʃi, zejtar, kejmæ, istrejtɪ, trej   |
| 61 | ej             | pejʃi, kejmæ, ɪʃtrejtɪ   |
| 62 | õ              | pwasõ, pɛhõ, nõ, tõbe, tõbæ, tõbar, kõte, kõtar, kõte, põ, õt, lõgu, lõ, õ   |
| 63 | ɛ:             | u:hɛ:, ɛ:w, tɛ:ɐ, tɛ:nebre, tɛ:nebre, ʃɛ:r, kwɛ:   |
| 64 | ɥ              | fɥi, plɥi, kɥide, esɥije, flyktɥe  |
| 65 | ø:             | flø:ɐ, stø:l, fø:, bø:ɐ, savø:r, kø:z, stø:, dø:, trø:   |
| 66 | ɭ              | sɭ, aɭsa, aɭsar, kuɭa, fɭama, aɭgũ, aɭ, deɭyaðu  |
| 67 | c              | soliculus, cuca:, lanci:, cɔase, cantar, fluctua, molc, tanc   |
| 68 | ɛj             | sɔɛj, fɛɛje  |
| 69 | ø              | løn, fø, pø, dø  |
| 70 | ɛa             | stɛa, ʃɛatʃə, bɛa, zəʃɛa, ʃedɛa, kədɛa   |
| 71 | k <sup>w</sup> | ak <sup>w</sup> a, tork <sup>w</sup> ere, 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  |
| 72 | ɣ              | aɣwa, aɣwə, laɣu, foɣu, musəɣa, naviɣaɐ, nɛviɣaɪ, siɣuraɪ, ɪʃfriɣaɪ, ɛʃuɣaɪ, ɭiɣa,<br>zuɣaɪ, laɣo, deɣaðo, deɣaðu  |
| 73 | aj             | aɣwə, tene:braj, kajkia, kajlum, traj, majjorem, duaj  |
| 74 | g              | age, lago, lɛnge, naviga:re, naviga:, mergere, gyra:re, stringere, stringe, strɛngi:, fr<br>ega:re, impingere, lega, xugaɪ, glatʃa:, ingɛtsa, flagɐæ, alguno, magnum, grandem,<br>gran, gɐã, grant, longo, lung, largum, larg, grav, grɛvi, grew, ingust   |
| 75 | ɲ              | aɲ, nɔɲ, lɛngwa, maɲja:, peɲsa:, aɲɲka, ɭoɲ, ingust, uɲ, ʃiɲkwe, siɲk, ʃiɲk  |
| 76 | g <sup>w</sup> | ling <sup>w</sup> a  |
| 77 | ẽɥ             | lẽɥ  |
| 78 | ɑ              | bwaɐ, tɐwa   |
| 79 | β              | biβer, səβɛ, laβar   |
| 80 | ʃ              | maɲja:   |
| 81 | ẽ              | pẽse, epẽɛdɐ, etẽɛdɐ, ẽsãdje, kɔmẽ   |
| 82 | ɔ:             | hɔ:si:   |
| 83 | ũ              | mũjtu, awgũ, aɭgũ, ã   |
| 84 | ĩ              | mũjtu  |
| 85 | œ              | okœ, œ   |

## Appendix 4 - Segments used in the word list

|    |    |        |
|----|----|--------|
| 86 | au | paʊkus |
| 87 | ʃ  | ʃine   |
| 88 | ũ  | nẽũ    |

## 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                   |
| ManHumanBeing-Secondary | 'hominē             | h-oh-m-e-n-ehn             |
| 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            | ten-e: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               |



## Appendix 5 - Word Lists by Language

|                             |                        |                         |
|-----------------------------|------------------------|-------------------------|
| Fog-Caecia                  | kajkia                 | k-aj_diphthong-k-e-ah   |
| 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           |
| ToDie                       | mori:--                | m-oh-r-E                |
| 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-Iacere        | 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    |
| 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       |

## Appendix 5 - Word Lists by Language

|                       |              |                           |
|-----------------------|--------------|---------------------------|
| 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  | appetora: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        | tra-here     | t-r-ah-h-ay-r-ay          |
| ToPush                | impingere    | e-m-p-e-n-j-ay-r-ay       |
| ToThrow               | ja-hta: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        | ekspo:nere   | 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    |
| 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         |

## Appendix 5 - Word Lists by Language

|                        |                                      |                             |
|------------------------|--------------------------------------|-----------------------------|
| 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                    | paukus                               | 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                    |
| 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                       |

## Appendix 5 - Word Lists by Language

|             |                        |                |
|-------------|------------------------|----------------|
| 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                            |
| ManHumanBeing-Secondary | om           | oh-m                           |
| 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                       |
| Lake                    | lak--        | l-ah-k                         |
| Sea                     | mɛʁ-         | m-eh-rr                        |
| Salt                    | sɛl--        | s-eh-l                         |
| Earth                   | t-e-ʁ-       | t-ay-rr                        |
| Fog-Nebula              | nʒo---ly     | n-jg-euh-l-eeh                 |

## Appendix 5 - Word Lists by Language

|                             |             |                   |
|-----------------------------|-------------|-------------------|
| Fog-Tenebras                | t-en-εbʁ-   | 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                  | nǝ---       | n-oon             |
| Tongue                      | lǎ-g--      | l-NasalA-g        |
| ToDrink                     | b--wawʁ-    | b-w-a-rr          |
| ToEat-Manducare             | mǎ-ʒ--e--   | m-NasalA-gzah-ay  |
| ToBite                      | m-oʊd-ʁ-    | m-oh-rr-d-rr      |
| ToSuck                      | syse--      | s-eeh-s-ay        |
| ToSpit                      | kǝ-spye-    | k-oon-s-p-eeh-ay  |
| ToKnow-Sapere               | savwawʁ-    | s-ah-v-w-ah-rr    |
| ToKnow-Cognoscere           | kɔ-nε-tʁ-   | k-euh-n-eh-t-rr   |
| ToThink                     | kʏ--ide--   | k-eu-e-d-ay       |
| ToThink-Pensare             | pǎ-se--     | p-NasalA-s-ay     |
| ToFear-Tremere              | kʁĕ-d-ʁ-    | k-rr-ehn-d-rr     |
| ToSleep                     | d-ɔʁmiʁ-    | d-euh-rr-m-e-rr   |
| ToLive                      | viv-ʁ-      | v-e-v-rr          |
| ToDie                       | muriʁ-      | m-u-rr-e-rr       |
| ToSwim-Navigare             | na--ʒe--    | n-ah-gzah-ay      |
| ToFly                       | vole--      | v-oh-l-ay         |
| ToWalk                      | fəmine--    | shh-aah-m-e-n-ay  |
| ToWalk-Marcher              | maʁʃe       | m-ah-rr-shh-ay    |
| ToCome                      | vəniʁ-      | v-aah-n-e-rr      |
| ToLieAsInABed               | e-tǎ-d-ʁ-   | ay-t-NasalA-d-rr  |
| ToLieAsInABed-lacere        | ʒe-zivʁ-    | gzah-ay-zz-e-rr   |
| ToSit                       | swa--ʁ-     | s-w-ah-rr         |
| ToStand                     | ε-t-ʁ-      | eh-t-rr           |
| ToStand-Levare              | ləve--      | l-aah-v-ay        |
| ToStand-Altiare             | -o-s-e--    | oh-s-ay           |
| ToTurnIntransitive          | tʉʁne--     | t-u-rr-n-ay       |
| ToTurnIntransitive-Gyrare   | ʒivʁe--     | gzah-e-rr-ay      |
| ToTurnIntransitive          | vivʁe--     | v-e-rr-ay         |
| -AncestralClass3            |             |                   |
| ToTurnIntransitive-Torquere | tɔʁd-ʁ-     | t-euh-rr-d-rr     |
| ToFall                      | fwa--ʁ-     | shh-w-ah-rr       |
| ToFall-Tumbare              | tō-be-      | t-on-b-ay         |
| ToHold                      | tən-iʁ-     | t-aah-n-e-rr      |
| ToSqueeze                   | e--pʁĕ-d-ʁ- | ay-p-rr-ehnn-d-rr |
| ToSqueeze-Serare            | se-ʁe--     | s-ay-rr-ay        |

## Appendix 5 - Word Lists by Language

|                       |            |                       |
|-----------------------|------------|-----------------------|
| ToSqueeze-Stringere   | e-tʃẽ-d-ʃ- | ay-t-rr-ehnn-d-rr     |
| ToRub                 | fʃɛje--    | f-rr-eh_diphthong-ay  |
| ToRub-Frictare        | fʃote--    | f-rr-oh-t-ay          |
| ToWash                | lave--     | l-ah-v-ay             |
| ToWipe-Exsucare       | e-sʊi-je-- | ay-s-eu-e-jg-ay       |
| ToPull                | tɪɛ--      | t-e-rr-ay             |
| ToPull-Pulsare        | pu-se--    | p-u-s-ay              |
| ToPull-Trahare        | tʃ---ɛʃ-   | t-rr-eh-rr            |
| ToThrow               | ʒə--te     | gzah-aah-t-ay         |
| ToThrow-Lanceare      | lã-s-e-    | l-NasalA-s-ay         |
| ToTie                 | li-e--     | l-e-ay                |
| ToSew                 | ku-d---ʃ-  | k-u-d-rr              |
| ToCount               | kõ---te--  | k-on-t-ay             |
| ToCount-Enumerare     | enumeɾe--  | ay-n-u-m-ay-rr-ay     |
| ToSay                 | di--ʃ      | d-e-rr                |
| ToSing-AncestralClass | ʃã-te--    | shh-NasalA-t-ay       |
| ToPlay-Jiocare        | ʒ-w-e--    | gzah-w-ay             |
| ToFloat               | flyktɥe--  | f-l-eeh-k-t-eu-ay     |
| ToFlow                | flye--     | f-l-eeh-ay            |
| ToFlow-Colare         | kule--     | k-u-l-ay              |
| ToFlow-Currere        | ku-ʃiʃ-    | k-u-rr-e-rr           |
| ToFreeze              | ʒəle--     | gzah-aah-l-ay         |
| ToFreeze-Glaciare     | gla-s-e--  | g-l-ah-s-ay           |
| ToBurn-Brojan         | bɾyle--    | b-rr-eeh-l-ay         |
| ToBurn-Cremare        | kɾame--    | k-rr-ah-m-ay          |
| ToBurn-Flammare       | flã-be--   | f-l-NasalA-b-ay       |
| ToBurn-Ardere         | aɾd-ʃ-     | ah-rr-d-rr            |
| ToBurn-Flagrare       | flagɾe--   | f-l-ah-g-rr-ay        |
| ToBurn-Incendere      | ẽ-sã-dje-- | ehnn-s-NasalA-d-jg-ay |
| All-Totus             | tu----     | t-u                   |
| Many                  | mu---      | m-u                   |
| Some                  | o-kœ-      | oh-k-uuh              |
| Few                   | pø---      | p-uu                  |
| Other                 | o-t-ʃ-     | oh-t-rr               |
| Big-Grandem           | gɾã---     | g-rr-an               |
| Long-Longum           | lõ-----    | l-oon                 |
| Long-Largum           | laɾʒ--     | l-ah-rr-gzah          |
| Wide                  | le---      | l-ay                  |
| Wide-Amplum           | ã-pl--     | NasalA-p-l            |
| Heavy                 | gɾav--     | g-rr-ah-v             |
| Heavy-Lurdus          | luɾ---     | l-u-rr                |
| Heavy-Pesant          | pəzã---    | p-aah-zz-NasalA       |

## Appendix 5 - Word Lists by Language

|                 |             |              |
|-----------------|-------------|--------------|
| Small           | pə-ti---    | p-aah-t-e    |
| Short           | kuɤ---      | k-u-rr       |
| Short-Brevis    | bɤɛf--      | b-rr-eh-f    |
| Narrow-Strictus | e-tɤwa----- | ay-t-rr-w-ah |
| Thin            | məny----    | m-aah-n-eeh  |
| Thin-Delicatus  | du:--ze:--- | d-U-gzah-ai  |
| Green           | veɤ----     | v-ay-rr      |
| One             | œ---        | uuh          |
| Two-Duos        | d-ø-        | d-uu         |
| Three           | tɤwɑ-       | t-rr-w-a     |
| Four            | k-a-t-ɤ-    | k-ah-t-rr    |
| Five            | sẽ-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             | nõ-         | 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             |
| Woman                       | -e-m-br-a | ay-m-b-er-ah           |
| Woman-Mulier                | mux-er--  | m-u-xha-ay-er          |
| Woman-Domina                | do--ɲa    | 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                |

## Appendix 5 - Word Lists by Language

|                    |            |                                    |
|--------------------|------------|------------------------------------|
| 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                     |
| 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                       |
| ToSwim             | n-adar-    | n-ah-d-ah-er                       |



## Appendix 5 - Word Lists by Language

|                             |             |                                  |
|-----------------------------|-------------|----------------------------------|
| 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            |
| 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                      | laßar-      | 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--tjar    | 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                   |

## Appendix 5 - Word Lists by Language

|                       |             |                             |
|-----------------------|-------------|-----------------------------|
| 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                  |
| 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           | antʃ-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-tʃo- | 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                      |

## Appendix 5 - Word Lists by Language

|             |           |                         |
|-------------|-----------|-------------------------|
| 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  |
| 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               | -spɔɔ-za      | s-p-euh-zz-ah    |
| Wife-Mulier        | moʎʎe--       | m-oh-yuh-yuh-ay  |
| Husband            | marito-       | m-ah-r-e-t-oh    |
| Husband-Sponsus    | -spɔɔ-zo-     | s-p-euh-zz-oh    |
| Husband-Socius     | sɔʎf-o-       | s-euh-ts-oh      |
| Mother             | ma:dre-       | m-A-d-r-ay       |
| Fish-Piskem        | peʎfe-        | p-ay-shh-shh-ay  |
| Bird-Avicellum     | --u-tʎf-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         | naritʎe       | n-ah-r-e-ts-ay   |
| Sun                | sole-         | s-oh-l-ay        |
| Moon               | luna          | l-u-n-ah         |

## Appendix 5 - Word Lists by Language

|                      |             |   |
|----------------------|-------------|---|
| 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:n-ebre   | 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                  | 'tʃ-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-ordere    | m-euh-r-d-ay-r-ay                         |
| ToBite-Morsicare     | morsikare   | m-oh-r-s-e-k-ah-er-ay                     |
| ToSpit-Sputare       | -sputare    | s-p-u-t-ah-er-ay                          |
| ToKnow-Sapere        | sap-e:re    | s-ah-p-ai-r-ay                            |
| ToKnow-Cognoscere    | ko-noffere  | k-oh-n-oh-shh-shh-ay-r-ay                 |
| ToThink              | k-odʒitare  | k-oh-VdPalatoAlveolarSibilant-e-t-ah-r-ay |
| ToThink-Pensare      | pensare     | p-ay-n-s-ah-er-ay                         |
| ToFear               | teme:re     | t-ay-m-ai-r-ay                            |
| ToFear-Tremere       | trem-are    | t-r-ay-m-ah-r-ay                          |
| ToSleep              | d-ormi:re   | d-oh-r-m-E-r-ay                           |
| ToLive               | vi:vere     | v-E-v-ay-r-ay                             |
| ToDie                | mori:re     | m-oh-r-E-r-ay                             |
| ToSwim               | nwotare     | n-w-oh-t-ah-er-ay                         |
| ToSwim-Navigare      | navigare    | n-ah-v-e-g-ah-r-ay                        |
| ToFly                | volare      | v-oh-l-ah-er-ay                           |
| ToFly-Exvolare       | zvola:re    | zz-v-oh-l-A-er-ay                         |
| ToWalk               | kammina:re  | k-ah-m-m-e-n-A-er-ay                      |
| ToWalk-Mergere       | mɛrdʒere    | m-eh-r-VdPalatoAlveolarSibilant-ay-r-ay   |
| ToWalk-Ambitare      | and--are    | ah-n-d-ah-r-ay                            |
| ToCome               | veni:re     | v-ay-n-E-er-ay                            |
| ToLieAsInABed        | e-stendere  | ay-s-t-eh-n-d-ay-r-ay                     |
| ToLieAsInABed-lacere | dʒa-tʃe:re  | VdPalatoAlveolarSibilant-ah-ts-ai-er-ay   |

## Appendix 5 - Word Lists by Language

|                             |             |  |
|-----------------------------|-------------|--|
| ToSit                       | s-edere     | s-ay-d-ay-r-ay                             |
| ToStand                     | -sta:re     | s-t-A-r-ay                                 |
| ToStand-Levare              | leva:re     | l-ay-v-A-r-ay                              |
| ToStand-Altiare             | -altsare    | ah-l-VlAlveolarSibilantAffricate-ah-r-ay   |
| ToTurnIntransitive          | tornare     | t-oh-r-n-ah-r-ay                           |
| ToTurnIntransitive-Gyrare   | ɖgira:re    | VdPalatoAlveolarSibilant-e-r-A-er-ay       |
| ToTurnIntransitive          | vira:re     | v-e-r-A-er-ay                              |
| -AncestralClass3            |             |  |
| ToTurnIntransitive-Torquere | tɔrtʃere    | t-euh-r-ts-ay-r-ay                         |
| ToFall                      | k-ade:re    | k-ah-d-ai-er-ay                            |
| ToHold                      | ten-e:re    | t-ay-n-ai-er-ay                            |
| ToSqueeze                   | --sprɛm-ere | s-p-r-eh-m-ay-r-ay                         |
| ToSqueeze-Serare            | serrare     | s-ay-r-r-ah-r-ay                           |
| ToSqueeze-Stringere         | -strindʒere | s-t-r-e-n-VdPalatoAlveolarSibilant-ay-r-ay |
| ToRub                       | frega:re    | f-r-ay-j-A-r-ay                            |
| ToRub-Frictare              | frettare    | f-r-ay-t-t-ah-r-ay                         |
| ToWash                      | lava:re     | l-ah-v-A-r-ay                              |
| ToWipe                      | tɛrdʒere    | t-eh-r-VdPalatoAlveolarSibilant-ay-r-ay    |
| ToWipe-Exsucare             | aff-ug-a:re | ah-shh-shh-u-g-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              | tra-r-re    | t-r-ah-r-r-ay                              |
| ToPush                      | impindʒere  | e-m-p-e-n-VdPalatoAlveolarSibilant-ay-r-ay |
| ToThrow                     | ɖʒe-ttare   | VdPalatoAlveolarSibilant-ay-t-t-ah-r-ay    |
| ToThrow-Lanceare            | lantʃa:re   | l-ah-n-ts-A-r-ay                           |
| ToThrow-Eruncare            | arrontʃa:re | ah-r-r-oh-n-ts-A-r-ay                      |
| ToTie                       | lega:re     | l-ay-g-A-r-ay                              |
| ToSew                       | ku--tʃ-i:re | k-u-ts-E-r-ay                              |
| ToCount                     | kon--ta:re  | k-oh-n-t-A-r-ay                            |
| ToCount-Enumerare           | enumera:re  | ay-n-u-m-ay-r-A-r-ay                       |
| ToSay                       | di:--re     | d-E-r-ay                                   |
| ToSay-Exponere              | --spor-re   | s-p-oh-r-r-ay                              |
| ToSing-AncestralClass       | kanta:re    | k-ah-n-t-A-r-ay                            |
| ToPlay-Jiocare              | ɖʒo-ka:re   | VdPalatoAlveolarSibilant-oh-k-A-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               | kola:re     | k-oh-l-A-r-ay                              |
| ToFlow-Excurrere            | --skorrere  | s-k-oh-r-r-ay-r-ay                         |
| ToFlow-Currere              | korrere     | k-oh-r-r-ay-r-ay                           |
| ToFreeze                    | ɖʒelare     | VdPalatoAlveolarSibilant-ay-l-ah-r-ay      |
| ToFreeze-Glaciare           | gʒattʃare   | g-jg-ah-t-ts-jg-ah-r-ay                    |

## Appendix 5 - Word Lists by Language

|                        |             |                                       |
|------------------------|-------------|---------------------------------------|
| ToBurn-Brojan          | bruʃa:re    | b-r-u-ts-A-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 |
| 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         | pittʃino-   | 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                   | 'ʃɪŋkwe     | 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                                   |

## Appendix 5 - Word Lists by Language

|             |        |               |
|-------------|--------|---------------|
| 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                                 |
| Woman                       | fe-me---e  | f-ay-m-ay-ahh                             |
| Woman-Mulier                | muʎ-eɤ--   | 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-ahn-ts-e                            |
| Child-Ninnus                | nenẽj      | n-ay-n-nasal_diphthong_portuguese1        |
| Wife                        | ispo-za    | e-s-p-oh-zz-ah                            |
| Wife-Mulier                 | muʎ-eɤ-    | 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                         | maɤ-       | m-ah-rr                                   |
| Salt                        | saw--      | s-ah-w                                    |
| Earth                       | 't-e-ɤɐ    | t-ay-rr-ahh                               |
| Fog                         | kalizẽj--- | k-ah-l-e-gzah-nasal_diphthong_portuguese1 |

## Appendix 5 - Word Lists by Language

|                             |            |                                |
|-----------------------------|------------|--------------------------------|
| Fog-Nebula                  | n-ε-vw-ε   | n-eh-v-w-ahh                   |
| Fog-Fumata                  | fumase     | f-u-m-ah-s-ahh                 |
| Sky                         | s-εw--     | s-eh-w                         |
| Wind                        | 'v-ē-tu-   | v-ehn-t-u                      |
| Fire-Focus                  | f-ogu-     | f-oh-g-u                       |
| Year                        | ε-nu-      | ahh-n-u                        |
| Name-Nomen                  | nomi-      | n-oh-m-e                       |
| Tongue                      | 'lī-gwε    | l-een-g-w-ahh                  |
| ToDrink                     | beb-εκ-    | b-ay-b-ay-rr                   |
| ToEat                       | kome---    | k-oh-m-ay                      |
| ToEat-Manducare             | mē-ζ--aκ-  | m-ahn-gzah-ah-rr               |
| ToBite                      | m-οκδεκ-   | m-oh-rr-d-ay-rr                |
| ToBite-Morsicare            | mu-səga--  | m-u-s-aah-g-ah                 |
| ToSuck                      | sugaκ-     | s-u-g-ah-rr                    |
| ToSpit                      | ku-spiκ    | k-u-s-p-e-rr                   |
| ToKnow-Sapere               | sab-εκ-    | s-ah-b-ay-rr                   |
| ToKnow-Cognoscere           | ko-πes-εκ- | k-oh-VdPalatalNasal-ay-s-ay-rr |
| ToThink                     | k-uζitaκ-  | k-u-gzah-e-t-ah-rr             |
| ToThink-Pensare             | pē-saκ-    | p-ehn-s-ah-rr                  |
| ToFear                      | temεκ-     | t-ay-m-ay-rr                   |
| ToFear-Tremere              | trem-εκ-   | t-er-ay-m-ay-rr                |
| ToSleep                     | d-οκμικ-   | d-oh-rr-m-e-rr                 |
| ToLive                      | viveκ-     | v-e-v-ay-rr                    |
| ToDie                       | moεεκ-     | m-oh-rr-ay-rr                  |
| ToSwim                      | n-adaκ-    | n-ah-d-ah-rr                   |
| ToSwim-Navigare             | naviγaκ-   | n-ah-v-eee-juh-ah-rr           |
| ToFly                       | vo-aκ-     | v-oh-ah-rr                     |
| ToWalk                      | kemipaκ-   | k-ahh-m-e-VdPalatalNasal-ah-rr |
| ToWalk-Ambitare             | ē-d--aκ-   | ahn-d-ah-rr                    |
| ToCome                      | v--iκ-     | v-e-rr                         |
| ToLieAsInABed               | istē-deκ-  | e-s-t-ehn-d-ay-rr              |
| ToLieAsInABed-lacere        | ζε-zεκ-    | gzah-ahh-zz-ay-rr              |
| ToSit                       | s-e--κ-    | s-ay-rr                        |
| ToSit-Sedentare             | sē---tar-  | s-ehn-t-ah-er                  |
| ToStand                     | iftar-     | eee-shh-t-ah-er                |
| ToStand-Levare              | levaκ-     | l-ay-v-ah-rr                   |
| ToStand-Altiare             | -aτs-a--   | ah-ssha-s-ah                   |
| ToTurnIntransitive          | toτnaκ-    | t-oh-rr-n-ah-rr                |
| ToTurnIntransitive-Gyrare   | zīrar-     | gzah-e-er-ah-er                |
| ToTurnIntransitive          | virar-     | v-e-er-ah-er                   |
| -AncestralClass3            |            |                                |
| ToTurnIntransitive-Torquere | turser-    | t-u-r-s-ay-r                   |



## Appendix 5 - Word Lists by Language

|                       |             |   |
|-----------------------|-------------|---|
| ToFall                | k-ɐ-ir-     | k-ahh-e-er  |
| ToFall-Tumbare        | tõ-baʁ      | t-on-b-ah-rr  |
| ToHold                | te---ʁ-     | t-ay-rr   |
| ToHold-Segurar        | siguraʁ     | s-eee-g-u-er-ah-rr  |
| ToSqueeze             | i-ʃprəm-eʁ- | e-shh-p-r-aah-m-ay-rr   |
| ToSqueeze-Serrere     | se-ʁa--     | s-ay-rr-ah  |
| ToSqueeze-Serare      | si-ʁar-     | s-eee-rr-ah-er  |
| ToSqueeze-Appetorare  | ɐ-pi-r-tar- | ahh-p-eee-er-t-ah-er  |
| ToSqueeze-Stringere   | əʃtri-ʒir-  | aah-shh-t-r-een-gzah-e-r  |
| ToRub-Exfricare       | ɪfʁiɡar     | eee-shh-f-er-eee-g-ah-er  |
| ToWash                | lɛvar-      | l-ahh-v-ah-er   |
| ToWipe-Exsucare       | ẽ-ʃ-ug-ar-  | ehn-shh-u-g-ah-er   |
| ToWipe-Limpidare      | li-p--ar-   | l-een-p-ah-er   |
| ToPull                | tʃira--     | ts-e-er-ah  |
| ToPull-Pulsare        | pu-ʃar-     | p-u-shh-ah-er   |
| ToPull-Trahere        | tra-ze--    | t-er-ah-zz-ay   |
| ToThrow               | ʒej-tar     | gzah-ej_diphthong-t-ah-er   |
| ToThrow-Lanceare      | lɛ-s-a--    | l-ahn-s-ah  |
| ToTie-Aptare          | ɐ-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              | ʒɪlar-      | gzah-eee-l-ah-er  |
| ToBurn-Cremare        | k-ɛjmare    | 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<br>-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   |

## Appendix 5 - Word Lists by Language

|                 |              |                                     |
|-----------------|--------------|-------------------------------------|
| Other-Alius     | aw---        | ah-w                                |
| Big-Grandem     | grě-dzi-     | g-er-ahn-VdPalatoAlveolarSibilant-e |
| Long-Longum     | lõ-gu-       | l-on-g-u                            |
| Long-Largum     | laɣgu-       | 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                        |
| Heavy-Pesant    | peza-du      | p-ay-zz-ah-d-u                      |
| Small-Pittinus  | pekenu-      | p-ay-k-ay-n-u                       |
| Short           | kuxt-        | 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   | sufɿw--      | 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-eeen-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             | něwĩ         | n-ahn-wh                            |
| Not-Nec         | něj          | n-nasal_diphthong_portuguese1       |
| And-Et          | i-           | e                                   |

### Portuguese

| Ancestral Class             | IPA    | Sounds     |
|-----------------------------|--------|------------|
| I                           | -e-w   | ay-w       |
| We                          | nɔ-f   | n-euh-shh  |
| YouPlural                   | vo-f   | v-oh-shh   |
| YouSingular                 | tu     | t-u        |
| YouSingular-VostramMercedem | vɔs-e- | v-euh-s-ay |

## Appendix 5 - Word Lists by Language

|                  |            |  |
|------------------|------------|--|
| Woman            | 'fe-mj---e | f-ay-m-jg-ahh                              |
| Woman-Mulier     | muʎ-er--   | m-u-yuh-ay-er                              |
| Woman-Domina     | do--ne     | d-oh-n-ahh                                 |
| ManHumanBeing    | ɔmẽj---    | euh-m-nasal_diphthong_portuguese1          |
| Child            | ĩ-fẽ-ti-   | een-f-ahm-t-eee                            |
| Child-Ninnus     | nenẽj      | n-ay-n-nasal_diphthong_portuguese1         |
| Wife             | ifpo-zɐ    | eee-shh-p-oh-zz-ahh                        |
| Wife-Mulier      | muʎ-er-    | m-u-yuh-ay-er                              |
| Husband          | meriðu-    | m-ahh-er-e-dd-u                            |
| Husband-Sponsus  | ifpo-zu-   | eee-shh-p-oh-zz-u                          |
| Mother           | mẽj----    | m-nasal_diphthong_portuguese2              |
| Fish-Piskem      | peɟf-i-    | p-diphthong_portuguese-shh-eee             |
| Bird-Avem        | avi-       | ah-v-eee                                   |
| Bird-Passerem    | pa-sɛru-   | p-ah-s-ahh-er-u                            |
| Fruit            | fru--tɐ-   | f-er-u-t-ahh                               |
| Flower           | flor--     | f-l-oh-er                                  |
| Nose-Nares       | nerɟf-     | n-ahh-er-e-shh                             |
| Sun              | sɔʎ--      | s-euh-ssha                                 |
| Moon             | lu-e       | l-u-ahh                                    |
| Star             | iftre-lɐ   | eee-shh-t-er-ay-l-ahh                      |
| Water            | 'a-gwɐ     | ah-g-w-ahh                                 |
| Rain             | ɟ-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-ʁɐ    | t-eh-rr-ahh                                |
| Fog              | kelizẽj--- | k-ahh-l-e-gzah-nasal_diphthong_portuguese2 |
| Fog-Nebula       | n-ɛ-vw-e   | n-eh-v-w-ahh                               |
| Fog-Tenebras     | tr---ɛv-ɐɟ | t-er-eh-v-ahh-shh                          |
| 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-oɣu-     | f-oh-juh-u                                 |
| Year             | e-nu-      | ahh-n-u                                    |
| Name-Nomen       | nomi-      | n-oh-m-eee                                 |
| Tongue           | 'li-gwɐ    | l-een-g-w-ahh                              |
| ToDrink          | biβ-er-    | b-eee-bb-ay-er                             |
| ToEat            | kum--er-   | k-u-m-ay-er                                |
| ToEat-Manducare  | mẽ-ɟ--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                                |

## Appendix 5 - Word Lists by Language

|                               |             |                                |
|-------------------------------|-------------|--------------------------------|
| To Spit                       | ku-ʃpir     | k-u-shh-p-e-er                 |
| To Know-Sapere                | seb-er-     | s-ahh-b-ay-er                  |
| To Know-Cognoscere            | ku-ɲis-er-  | k-u-VdPalatalNasal-eee-s-ay-er |
| To Think                      | k-uʒitar-   | k-u-gzah-e-t-ah-er             |
| To Think-Pensare              | pẽ-sar-     | p-ehn-s-ah-er                  |
| To Fear                       | timer-      | t-eee-m-ay-er                  |
| To Fear-Tremere               | trim-er-    | t-er-eee-m-ay-er               |
| To Sleep                      | d-urmir-    | d-u-er-m-e-er                  |
| To Live                       | viver-      | v-e-v-ay-er                    |
| To Die                        | muʁer-      | m-u-rr-ay-er                   |
| To Swim                       | n-eðar-     | n-ahh-dd-ah-er                 |
| To Swim-Navigare              | neviyar-    | n-ahh-v-eee-juh-ah-er          |
| To Fly                        | vw-ar-      | v-w-ah-er                      |
| To Walk                       | kemipar-    | k-ahh-m-e-VdPalatalNasal-ah-er |
| To Walk-Ambitare              | ẽ-d--ar-    | ahn-d-ah-er                    |
| To Come                       | v--ir-      | v-e-er                         |
| To Lie As In A Bed            | iftẽ-der-   | e-shh-t-ehn-d-ay-er            |
| To Lie As In A Bed-lacere     | ʒe-zer-     | gzah-ahh-zz-ay-er              |
| To Sit                        | s-e--r-     | s-ay-er                        |
| To Sit-Sedentare              | sẽ---tar-   | s-ehn-t-ah-er                  |
| To Stand                      | iftar-      | eee-shh-t-ah-er                |
| To Stand-Levare               | līvar-      | l-eee-v-ah-er                  |
| To Stand-Altiare              | -aʎs-ar-    | ah-ssha-s-ah-er                |
| To Turn Intransitive          | turnar-     | t-u-er-n-ah-er                 |
| To Turn Intransitive-Gyrare   | ʒirar-      | gzah-e-er-ah-er                |
| To Turn Intransitive          | ʒirar-      | gzah-e-er-ah-er                |
| -AncestralClass3              |             |                                |
| To Turn Intransitive-Torquere | turser-     | t-u-r-s-ay-r                   |
| To Fall                       | k-e-ir-     | k-ahh-e-er                     |
| To Fall-Tumbare               | tõ-bar      | t-on-b-ah-er                   |
| To Hold                       | te---r-     | t-ay-er                        |
| To Hold-Segurar               | siɣurar     | s-eee-juh-u-er-ah-er           |
| To Squeeze                    | i-ʃprəm-er- | e-shh-p-r-aah-m-ay-r           |
| To Squeeze-Serrere            | sə-rar-     | s-aah-VIUvularTrill-ah-er      |
| To Squeeze-Serare             | si-ʁar-     | s-eee-rr-ah-er                 |
| To Squeeze-Appetorare         | e-pi-r-tar- | ahh-p-eee-er-t-ah-er           |
| To Squeeze-Stringere          | əʃtrĩʒir-   | aah-shh-t-r-een-gzah-e-r       |
| To Rub-Exfricare              | iffriɣar    | eee-shh-f-er-eee-juh-ah-er     |
| To Wash                       | lavar-      | l-ahh-v-ah-er                  |
| To Wipe-Exsucare              | ẽ-ʃ-uɣ-ar-  | ehn-shh-u-juh-ah-er            |
| To Wipe-Limpidare             | lī-p--ar-   | l-een-p-ah-er                  |
| To Pull                       | tirar-      | t-e-er-ah-er                   |

## Appendix 5 - Word Lists by Language

|                       |              |                                       |
|-----------------------|--------------|---------------------------------------|
| ToPull-Pulsare        | pu-far-      | p-u-shh-ah-er                         |
| ToPull-Trahere        | trɛ-zer-     | t-er-ahh-zz-ay-er                     |
| ToThrow               | ʒej-tar      | gzah-ej_diphthong-t-ah-er             |
| ToThrow-Lanceare      | lɛ-s-ar-     | l-ahn-s-ah-er                         |
| ToTie-Aptare          | ɐ-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 | kɛ-tar-      | k-ahn-t-ah-er                         |
| ToPlay-Jiocare        | ʒu-ɣar-      | 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-ɐer-      | k-u-rr-ay-er                          |
| ToFreeze              | ʒilar-       | gzah-eee-l-ah-er                      |
| ToBurn-Cremare        | k-ejmaɐe     | k-ej_diphthong-m-ah-rr-ay             |
| ToBurn-Ardere         | ɐrder-       | ahh-er-d-ay-er                        |
| ToBurn-Flagrare       | flagrar-     | f-l-ah-g-er-ah-er                     |
| ToBurn-Incendere      | ĩ-sɛ-djar-   | een-s-ehn-d-jg-ah-er                  |
| All-Totus             | to-ðu-       | t-oh-dd-u                             |
| Many                  | mũj-tu       | m-ooo-jn-t-u                          |
| Many-Tantus           | tɛ-tu-       | t-ahn-t-u                             |
| Some                  | aɭgũ--       | ah-ssha-g-ooo                         |
| Few                   | powku        | p-oh-w-k-u                            |
| Other                 | owt-ru       | oh-w-t-er-u                           |
| Other-Alius           | aɭ---        | ah-ssha                               |
| Big-Grandem           | grɛ-di-      | g-er-ahn-d-eee                        |
| Long-Longum           | lõ-gu-       | l-on-g-u                              |
| Long-Largum           | largu-       | l-ah-er-g-u                           |
| Wide                  | latu-        | l-ah-t-u                              |
| Wide-Amplum           | ɛ-ʃ-u-       | ahn-shh-u                             |
| Heavy                 | gravi-       | g-er-ah-v-eee                         |
| Heavy-Lurdus          | lerdo-       | l-ay-er-d-oh                          |
| Heavy-Pesant          | piza-ðu      | 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-ɛj--tu- | eee-shh-t-er-diphthong_portuguese-t-u |
| Thin                  | mi-u-ðu-     | m-e-u-dd-u                            |
| Thin-Delicatus        | deɭ-ɣaðu-    | d-eh-ssha-juh-ah-dd-u                 |

## Appendix 5 - Word Lists by Language

|               |           |                               |
|---------------|-----------|-------------------------------|
| Thin-Subtilis | suʃiw--   | s-u-ts-e-w                    |
| Green         | ver-di-   | v-ay-er-d-eee                 |
| One           | ũ---      | ooo                           |
| Two-Duos      | d-ojʃ     | d-oj_diphthong-shh            |
| Two-Duas      | duɐʃ      | 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          | -ɐ-k---i- | ahh-k-e                       |
| There         | --la-     | l-ah                          |
| There-Adlbi   | ɐi        | 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           | nẽw̃      | 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                      | flo---       | f-l-euh            |
| Nose                        | nas          | n-ah-s             |

## Appendix 5 - Word Lists by Language

|                           |            |                                 |
|---------------------------|------------|---------------------------------|
| Nose-Nares                | na:ris-    | n-A-r-NearCloseFrontUnrounded-s |
| 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                    | tɛmə--     | 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                        |
| 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                       |
| 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                    |

## Appendix 5 - Word Lists by Language

|                             |             |                                  |
|-----------------------------|-------------|----------------------------------|
| 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-stərɟi--  | 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              | trɛ-w-rə    | t-er-eh-w-er-aah                 |
| ToPush                      | əmpɛɲ-ə--   | aah-m-p-eh-VdPalatalNasal-aah    |
| ToThrow                     | xi-ta       | xha-e-t-ah                       |
| ToThrow-Lanceare            | ʎəns-a--    | yuh-aah-n-s-ah                   |
| ToTie                       | ʎiɣa--      | 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              | ɟu-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                    | ɟəla--      | 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                   |
| 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                        | əlgua--     | aah-l-g-u                        |
| Few                         | pɔk--       | p-euh-k                          |
| Other                       | alt-rə      | ah-l-t-er-aah                    |



## Appendix 5 - Word Lists by Language

|                 |             |                  |
|-----------------|-------------|------------------|
| 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-ɛ--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-ɛs      | t-r-eh-s         |
| Four            | kwa-t--rə   | k-w-ah-t-er-aah  |
| Five            | 'siŋk--     | 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-ɛ-        | 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<br>-NearCloseFrontUnrounded |
| We              | no--      | n-oh   |
| YouPlural       | vo-s      | v-oh-s   |
| YouSingular     | tɥ        | t-eeh  |
| Woman           | fœ-m----- | f-OpenMidNearFrontRounded-m                          |
| Woman-Domina    | dœm---    | d-OpenMidNearFrontRounded-m                          |
| ManHumanBeing   | -ɔm----   | euh-m  |
| Child           | ɛ-fã----  | eh-f-an  |
| Mother          | mɛ-r--    | m-ay-VIUvularTrill                                   |

## Appendix 5 - Word Lists by Language

|                      |               |                                  |
|----------------------|---------------|----------------------------------|
| Fish-Pescion         | p-ehō         | 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                  | sɔlb-         | 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-ē----       | v-ehn                            |
| Fire-Focus           | f-ø:----      | f-o                              |
| Year                 | ã----         | an                               |
| Name-Nomen           | nō---         | n-on                             |
| Tongue               | lēu----       | l-eu _nasalized _diphthong       |
| ToDrink              | b---ø:ʁ-      | b-o-rr                           |
| ToEat-Manducare      | maɲ---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      | pē-se--       | p-ehnn-s-ay                      |
| ToSleep              | dwaʁmi--      | d-w-ah-rr-m-e                    |
| ToDie                | mɔri--        | m-euh-VIUvularTrill-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           |
| ToCome               | vini--        | v-e-n-e                          |
| ToLieAsInABed-Iacere | dʒe--re       | VdPalatoAlveolarSibilant-ay-r-ay |
| ToStand              | εs----        | eh-s                             |
| ToStand-Levare       | løve--        | l-aah-v-ay                       |
| ToStand-Altiare      | hɔ:-s-i:      | h-LongOpenMidBackRounded-s-E     |
| ToTurnIntransitive   | tu:rne-       | t-U-r-n-ay                       |
| ToTurnIntransitive   | viʁe--        | v-e-rr-ay                        |
| -AncestralClass3     |               |                                  |
| ToFall               | tʃ-ε:--ʁ-     | ts-Eh-VIUvularTrill              |
| ToFall-Tumbare       | tum-e-        | t-u-m-ay                         |

## Appendix 5 - Word Lists by Language

|                       |             |                                  |
|-----------------------|-------------|----------------------------------|
| 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        | fɾote--     | 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               | dʒɛ-te      | VdPalatoAlveolarSibilant-eh-t-ay |
| ToThrow-Lanceare      | lanc-i:-    | l-ah-n-tya-E                     |
| ToTie                 | lɔji:--     | l-euh-jg-E                       |
| ToSew                 | kø:--z----  | k-o-zz                           |
| ToCount               | kõ--te--    | k-on-t-ay                        |
| ToSay                 | di:--ɸ      | 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         | bɤule--     | b-rr-U-l-ay                      |
| All-Totus             | tɔ----      | t-euh                            |
| Few                   | põ---       | p-on                             |
| Other                 | õ-t---      | on-t                             |
| Big-Grandem           | gɸã---      | j-rr-an                          |
| Long-Longum           | lõ----      | l-on                             |
| Heavy                 | grav--      | j-r-ah-v                         |
| Small                 | pi-ti---    | p-e-t-e                          |
| Short                 | ku:ɸ---     | k-U-rr                           |
| Short-Brevis          | bɤef--      | b-rr-ay-f                        |
| Narrow-Strictus       | -stɸø:----- | s-t-rr-o                         |
| Thin                  | minu----    | m-e-n-u                          |
| Thin-Subtilis         | su:ti---    | s-U-t-e                          |
| Green                 | vɛɸ----     | 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                       |

## Appendix 5 - Word Lists by Language

|             |        |              |
|-------------|--------|--------------|
| How-Quomodo | kɔmẽ-- | k-euh-m-ehnn |
| Not-Nec     | nẽ-    | n-ehn        |
| And-Et      | ε-     | 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-ε     | 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:r-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           | fɾu--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                    |
| Earth           | tjɛ-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          | 'lɛng-ε       | l-eh-n-j-eh              |
| ToDrink         | bevi--        | b-ay-v-e                 |
| ToEat-Manducare | manj--a:--    | m-ah-nya-VdPalatalStop-A |

## Appendix 5 - Word Lists by Language

|                           |             |                                 |
|---------------------------|-------------|---------------------------------|
| 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           | peɲsa:--    | 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                         |
| 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-lacere      | 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                      |
| 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          | lantʃa:--   | 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 |

## Appendix 5 - Word Lists by Language

|                   |             |                |
|-------------------|-------------|----------------|
| ToFlow-Excurrere  | --sko-ri:-- | s-k-oh-r-E     |
| ToFlow-Currere    | ko-ri--     | k-oh-r-e       |
| ToFreeze-Glaciare | gla-tʃ-a:-- | j-l-ah-ts-A    |
| ToBurn-Brojan     | bruza:--    | b-r-u-zz-A     |
| All-Totus         | du-t--      | d-u-t          |
| Many              | molc--      | 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             | grɛvi-      | j-r-eh-v-e     |
| Heavy-Pesant      | pezant-     | p-ay-zz-ah-n-t |
| Small-Pitulus     | pi-tʃul--   | p-e-ts-u-l     |
| Short             | kurt--      | k-u-r-t        |
| Narrow-Strictus   | -str-ɛ--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          |
| 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  |

## Appendix 5 - Word Lists by Language

|                    |             |   |
|--------------------|-------------|---|
| 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             | floare-     | 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         | tʃeɪf-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                               |
| 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             | fti--       | 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                                   |
| ToSwim-Navigare    | naviga--    | n-ah-v-e-g-ah                             |
| ToFly-Exvolare     | zbura--     | zz-b-u-er-ah                              |

## Appendix 5 - Word Lists by Language

|                             |             |   |
|-----------------------------|-------------|---|
| 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-tʃeə--   | zz-aah-ts-midfront_diphthong_romanian     |
| ToSit                       | ʃ-edɛə--    | 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 | tqartʃe--   | t-midback_diphthong_romanian-r-ts-ay      |
| ToFall                      | kədeə--     | k-aah-d-midfront_diphthong_romanian       |
| ToFall-Tumbare              | tumba-      | t-u-m-b-ah                                |
| ToHold                      | tsin-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            | --fterdʒe-- | 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              | tra-dʒe--   | t-r-ah-VdPalatoAlveolarSibilant-ay        |
| ToPush                      | impindʒe--  | eee-m-p-e-n-VdPalatoAlveolarSibilant-ay   |
| ToThrow-Eruncare            | a-runʃka    | ah-er-u-nya-k-ah                          |
| ToTie                       | lega--      | l-ay-j-ah                                 |
| ToSew                       | cqa--s-e--  | tya-midback_diphthong_romanian-s-ay       |
| ToCount-Enumerare           | -numara--   | n-u-m-ah-r-ah                             |
| ToSay                       | zitʃe       | 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            | --skurdʒe-- | s-k-u-er-VdPalatoAlveolarSibilant-ay      |
| ToFlow-Currere              | kurdʒe--    | 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            | intʃindʒe-- | 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                                  |



## Appendix 5 - Word Lists by Language

|                 |             |  |
|-----------------|-------------|--|
| Wide            | lat--       | l-ah-t                                   |
| Heavy           | grew--      | j-er-ay-w                                |
| Small-Pittinus  | pu-tsin--   | p-u-VlAlveolarSibilantAffricate-e-n      |
| Narrow          | ɪŋgust--    | eee-nya-j-u-s-t                          |
| Narrow-Strictus | -str-ɪm-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            | ʈɪntʃ--     | ts-e-n-ts                                |
| There           | --la-       | l-ah                                     |
| Who-Quem        | ʈʃ-ine      | VlAlveoloPalatalSibilantAffricate-e-n-ay |
| What            | ʈʃ-e-       | ts-ay                                    |
| When-Quando     | k-ɪnd       | k-eee-n-d                                |
| How-Quomodo     | kum---      | k-u-m                                    |
| Not             | nu-         | n-u                                      |
| And-Et          | e-          | ay                                       |
| And-Si          | ʃi-         | shh-e                                    |

## Appendix 6 - Segment Groups

### Pulmonic Consonants

| Manner              | Bilabial | Labial-Velar                  | Labio-Dental | Linguo-Labial | Dental | Alveolar | Post-Alveolar | 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          |          |                               |              |               |        |          |               | j       |       |        |              |         |
| Tap/Flap            |          |                               |              |               |        | ɾ        |               |         |       |        |              |         |
| Trill               |          |                               |              |               |        | r        |               |         |       | R      |              |         |
| Lateral, Fricative  |          |                               |              |               |        |          |               |         |       |        |              |         |
| Lateral, Ap         |          |                               |              |               |        | l        |               | ʎ       |       |        |              |         |
| 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

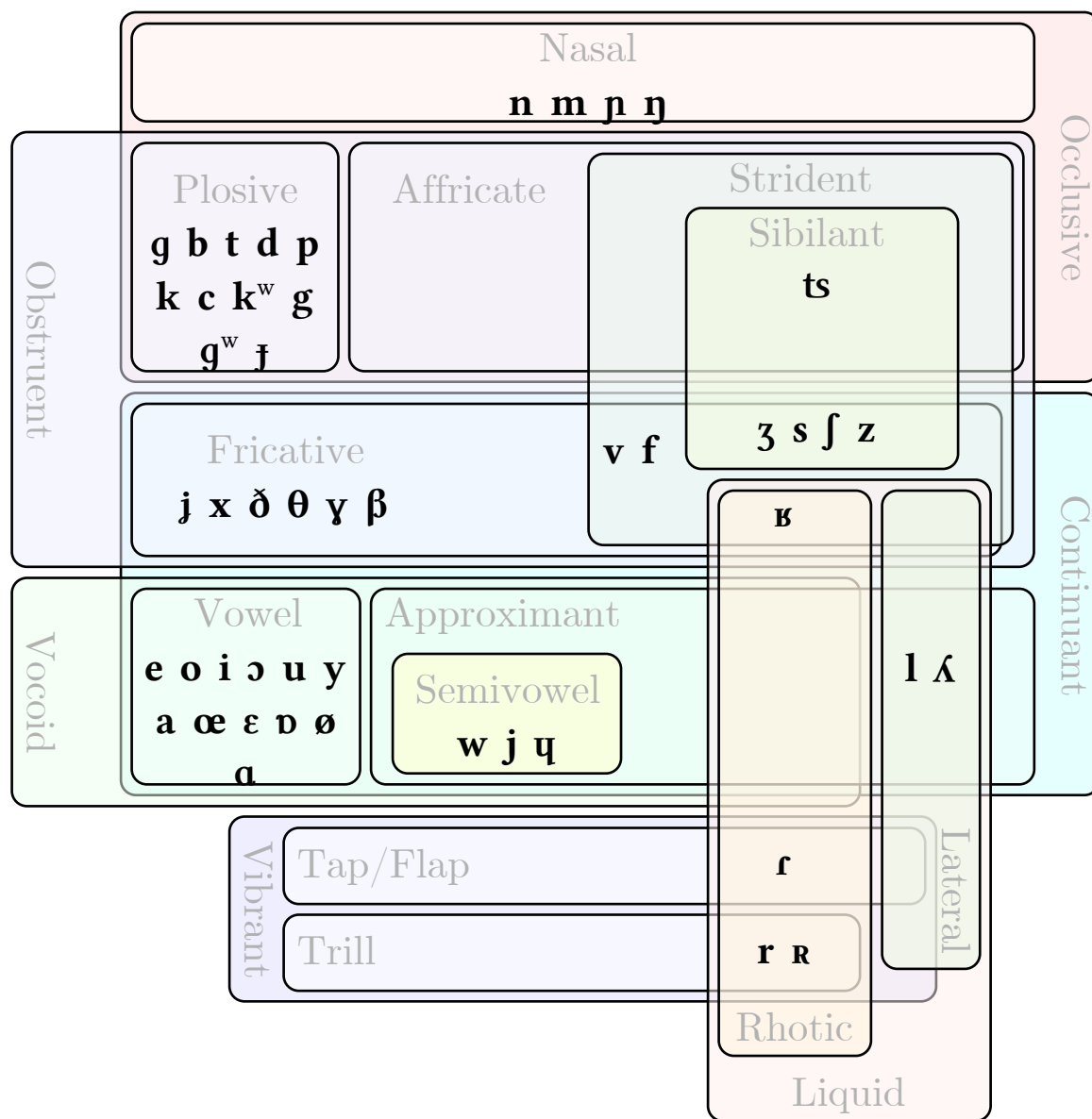
|  |  |
|--|--|
| <b>h</b> Glottal Pulmonic Fricative                                    | <b>ẽj</b> Mid Front Nasal Vowel Diphthong                        |
| <b>õ</b> Open-mid Back Rounded Nasal Vowel                             | <b>ẽ</b> Close Back Nasal Vowel                                  |
| <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>ɸ</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>z</b> Alveolar Voiced Pulmonic Sibilant Fricative             |
| <b>ð</b> Dental Voiced Pulmonic Fricative Obstruent Continuant         | <b>z</b> Strident Obstruent Continuant                           |
| <b>ts</b> Alveolar Pulmonic Sibilant Affricate Occlusive Strident      | <b>k</b> Velar Pulmonic Stop Occlusive                           |
| <b>ẽj</b> Mid Front Nasal Vowel Diphthong                              | <b>a:</b> Open Central Vocoid Long Vowel Continuant              |
| <b>ɒ</b> Open Back Rounded Vocoid Vowel Continuant                     | <b>ʀ</b> Uvular Pulmonic Trill Rhotic Vibrant Liquid             |
| <b>ej</b> Mid Front Vowel Diphthong                                    | <b>θ</b> Dental Pulmonic Fricative Obstruent Continuant          |
| <b>õ</b> Close-mid Back Rounded Nasal Vowel                            | <b>ɛj</b> Mid Front Vowel Diphthong                              |
| <b>ɥ</b> Labial-Palatal Vocoid Semivowel Voiced Approximant Continuant | <b>ɛ:</b> Open-mid Near-Front Vocoid Long Vowel Continuant       |
| <b>ɭ</b> Alveolar Voiced Velarized Pulmonic Lateral Approximant        | <b>ø:</b> Open Front Rounded Vocoid Long Vowel                   |
| <b>ɛj</b> Mid Front Vowel Diphthong                                    | <b>c</b> Palatal Pulmonic Stop Occlusive                         |
| <b>ɛ</b> Mid Front Vowel Diphthong                                     | <b>ø</b> Close-mid Front Rounded Vocoid Vowel Continuant         |
| <b>ɣ</b> Velar Voiced Pulmonic Fricative Obstruent Continuant          | <b>k</b> Labial-Velar Pulmonic Stop Occlusive                    |
| <b>g</b> Velar Voiced Pulmonic Stop Occlusive                          | <b>aj</b> Mid Front Vowel Diphthong                              |
| <b>g</b> Labial-Velar Voiced Pulmonic Stop Occlusive                   | <b>ŋ</b> Velar Voiced Pulmonic Nasal Occlusive                   |
|  | <b>ẽ</b> Mid Front Nasal Vowel Diphthong                         |
| <b>a</b> Open Back Vocoid Vowel Continuant                             | <b>β</b> Bilabial Voiced Pulmonic Fricative Obstruent Continuant |
| <b>ɸ</b> Palatal Voiced Pulmonic Stop Occlusive                        | <b>ẽ</b> Open-mid Near-Front Nasal Vowel                         |

## Appendix 6 - Segment Groups

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|    |  |    |  |
|----|--|----|--|
| ɔː | Open-mid Back Rounded Vowid Long Vowel<br>Continuant | ũ  | Open Back Nasal Vowel                                |
| ĩ  | Palatal Nasal Approximant                            | œ̃ | Open-mid Near-Front Rounded Nasal Vowel<br>Diphthong |
| a  | Mid Front Vowel Diphthong                            | ʈʃ | Alveolo-Palatal Pulmonic Sibilant Affricate          |
| Ẃ  | Labial-Velar Voiced Nasal Approximant                |    |  |

## Appendix 7 - Euler Feature Diagram



## Appendix 8 - International Phonetic Alphabet

### IPA Segments

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



## Appendix 8 - International Phonetic Alphabet

|   |   |  |   |
|---|---|--|---|
| <p style="text-align: center; font-size: 2em;">ɪ</p> <p style="text-align: center;">0268</p> <p style="text-align: center;">Close Central Vowel</p>   | <p style="text-align: center; font-size: 2em;">ʏ</p> <p style="text-align: center;">0265</p> <p style="text-align: center;">Labial-Palatal Vocoid<br/>Semivowel Voiced<br/>Approximant Continuant</p> | <p style="text-align: center; font-size: 2em;">ʁ</p> <p style="text-align: center;">0263</p> <p style="text-align: center;">Velar Voiced Pulmonic<br/>Fricative Obstruent<br/>Continuant</p> | <p style="text-align: center; font-size: 2em;">ɣ</p> <p style="text-align: center;">0261</p> <p style="text-align: center;">Velar Voiced Pulmonic<br/>Stop Occlusive</p>  |
| <p style="text-align: center; font-size: 2em;">ʃ</p> <p style="text-align: center;">025F</p> <p style="text-align: center;">Palatal Voiced Pulmonic<br/>Stop Occlusive</p>                  | <p style="text-align: center; font-size: 2em;">ɛ</p> <p style="text-align: center;">025B</p> <p style="text-align: center;">Open-mid Near-Front<br/>Vocoid Vowel Continuant</p>                       | <p style="text-align: center; font-size: 2em;">ə</p> <p style="text-align: center;">0259</p> <p style="text-align: center;">Close-mid Central Vowel</p>                                      | <p style="text-align: center; font-size: 2em;">ɔ</p> <p style="text-align: center;">0254</p> <p style="text-align: center;">Open-mid Back Rounded<br/>Vocoid Vowel Continuant</p>                                 |
| <p style="text-align: center; font-size: 2em;">ɒ</p> <p style="text-align: center;">0252</p> <p style="text-align: center;">Open Back Rounded<br/>Vocoid Vowel Continuant</p>               | <p style="text-align: center; font-size: 2em;">ɑ</p> <p style="text-align: center;">0251</p> <p style="text-align: center;">Open Back Vocoid Vowel<br/>Continuant</p>                                 | <p style="text-align: center; font-size: 2em;">ɐ</p> <p style="text-align: center;">0250</p> <p style="text-align: center;">Near-open Central<br/>Rounded Vowel</p>                          | <p style="text-align: center; font-size: 2em;">ũ</p> <p style="text-align: center;">0169</p> <p style="text-align: center;">Open Back Nasal Vowel</p>   |
| <p style="text-align: center; font-size: 2em;">œ</p> <p style="text-align: center;">0153</p> <p style="text-align: center;">Open-mid Near-Front<br/>Rounded Vocoid Vowel<br/>Continuant</p> | <p style="text-align: center; font-size: 2em;">ŋ</p> <p style="text-align: center;">014B</p> <p style="text-align: center;">Velar Voiced Pulmonic<br/>Nasal Occlusive</p>                             | <p style="text-align: center; font-size: 2em;">ĩ</p> <p style="text-align: center;">0129</p> <p style="text-align: center;">Close Front Nasal Vowel</p>                                      | <p style="text-align: center; font-size: 2em;">ø</p> <p style="text-align: center;">00F8</p> <p style="text-align: center;">Close-mid Front Rounded<br/>Vocoid Vowel Continuant</p>                               |
| <p style="text-align: center; font-size: 2em;">õ</p> <p style="text-align: center;">00F5</p> <p style="text-align: center;">Close-mid Back Rounded<br/>Nasal Vowel</p>                      | <p style="text-align: center; font-size: 2em;">ð</p> <p style="text-align: center;">00F0</p> <p style="text-align: center;">Dental Voiced Pulmonic<br/>Fricative Obstruent<br/>Continuant</p>         | <p style="text-align: center; font-size: 2em;">ã</p> <p style="text-align: center;">00E3</p> <p style="text-align: center;">Near-open Central Nasal<br/>Vowel</p>                            | <p style="text-align: center; font-size: 2em;">ʒ</p> <p style="text-align: center;">007A</p> <p style="text-align: center;">Alveolar Voiced Pulmonic<br/>Sibilant Fricative Strident<br/>Obstruent Continuant</p> |

## Appendix 8 - International Phonetic Alphabet

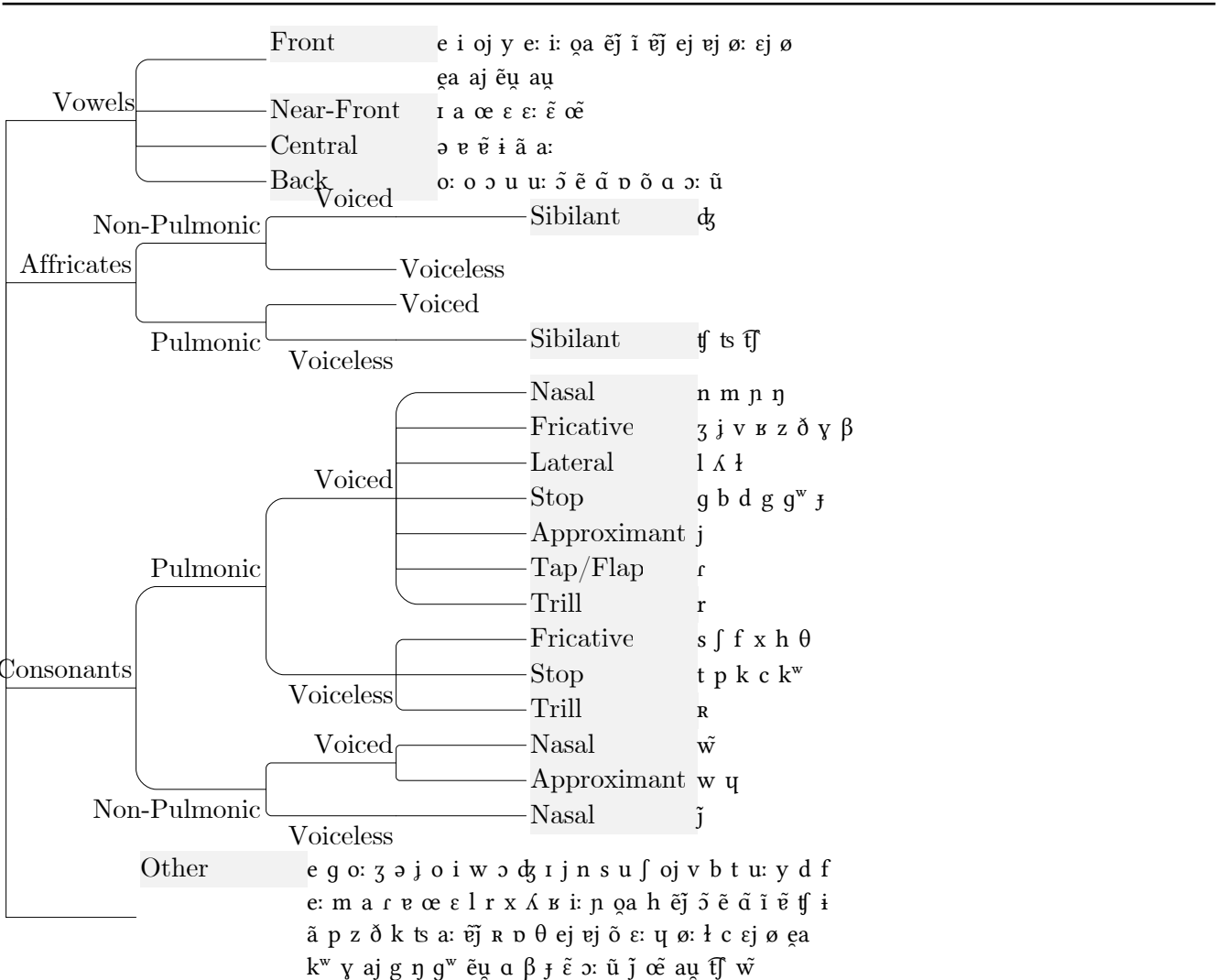
|  |   |  |   |
|--|---|--|---|
| y  | x   | w  | v   |
| 0079<br>Close Front Rounded<br>Vocoid Vowel Continuant                             | 0078<br>Velar Pulmonic Fricative<br>Obstruent Continuant  | 0077<br>Labial-Velar Vocoid<br>Semivowel Voiced<br>Approximant Continuant        | 0076<br>Labio-Dental Voiced<br>Pulmonic Fricative<br>Strident Obstruent<br>Continuant |
| u  | t   | s  | r   |
| 0075<br>Close Back Rounded<br>Vocoid Vowel Continuant                              | 0074<br>Alveolar Pulmonic Stop<br>Occlusive               | 0073<br>Alveolar Pulmonic<br>Sibilant Fricative Strident<br>Obstruent Continuant | 0072<br>Alveolar Voiced Pulmonic<br>Trill Rhotic Vibrant<br>Liquid                    |
| p  | o   | n  | m   |
| 0070<br>Bilabial Pulmonic Stop<br>Occlusive  | 006F<br>Close-mid Back Rounded<br>Vocoid Vowel Continuant | 006E<br>Alveolar Voiced Pulmonic<br>Nasal Occlusive                              | 006D<br>Bilabial Voiced Pulmonic<br>Nasal Occlusive                                   |
| l  | k   | j  | i   |
| 006C<br>Alveolar Vocoid Voiced<br>Pulmonic Lateral<br>Approximant Rhotic<br>Liquid | 006B<br>Velar Pulmonic Stop<br>Occlusive                  | 006A<br>Palatal Vocoid Semivowel<br>Voiced Pulmonic<br>Approximant Continuant    | 0069<br>Close Front Vocoid Vowel<br>Continuant  |
| h  | g   | f  | e   |
| 0068<br>Glottal Pulmonic<br>Fricative  | 0067<br>Velar Voiced Pulmonic<br>Stop Occlusive           | 0066<br>Labio-Dental Pulmonic<br>Fricative Strident<br>Obstruent Continuant      | 0065<br>Close-mid Front Vocoid<br>Vowel Continuant                                    |

## Appendix 8 - International Phonetic Alphabet

|  |  |  |  |
|--|--|--|--|
| d  | c  | b  | a  |
| 0064   | 0063   | 0062   | 0061                                       |
| Alveolar Voiced Pulmonic<br>Stop Occlusive     | Palatal Pulmonic Stop<br>Occlusive                       | Bilabial Voiced Pulmonic<br>Stop Occlusive             | Open Near-Front Vocoid<br>Vowel Continuant |
| g <sup>w</sup>                                 | ẽ  | εː   | εj   |
| 0261, 02B7                                     | 025B, 0303   | 025B, 02D0   | 025B, 006A                                 |
| Labial-Velar Voiced<br>Pulmonic Stop Occlusive | Open-mid Near-Front<br>Nasal Vowel                       | Open-mid Near-Front<br>Vocoid Long Vowel<br>Continuant | Mid Front Vowel<br>Diphthong               |
| õ  | ɔː   | ã  | ẽ  |
| 0254, 0303                                     | 0254, 02D0   | 0251, 0303   | 0250, 0303                                 |
| Open-mid Back Rounded<br>Nasal Vowel           | Open-mid Back Rounded<br>Vocoid Long Vowel<br>Continuant | Near-close Back Nasal<br>Vowel                         | Near-open Central<br>Rounded Nasal Vowel   |
| əj   | œẽ   | øː   | w̃   |
| 0250, 006A                                     | 0153, 0303   | 00F8, 02D0   | 0077, 0303                                 |
| Mid Front Vowel<br>Diphthong                   | Open-mid Near-Front<br>Rounded Nasal Vowel<br>Diphthong  | Open Front Rounded<br>Vocoid Long Vowel                | Labial-Velar Voiced Nasal<br>Approximant   |
| uː   | oː   | oj   | k <sup>w</sup>                             |
| 0075, 02D0                                     | 006F, 02D0   | 006F, 006A   | 006B, 02B7                                 |
| Close Back Rounded Long<br>Vowel               | Mid Back Rounded<br>Vocoid Long Vowel<br>Continuant      | Mid Front Vowel<br>Diphthong                           | Labial-Velar Pulmonic<br>Stop Occlusive    |

## Appendix 8 - International Phonetic Alphabet

|   |  |  |  |
|---|--|--|--|
| <p style="text-align: center; font-size: 2em;">ĩ</p> <p style="text-align: center;">006A, 0303<br/>Palatal Nasal<br/>Approximant</p>                          | <p style="text-align: center; font-size: 2em;">iː</p> <p style="text-align: center;">0069, 02D0<br/>Close Front Vocoid Long<br/>Vowel Continuant</p> | <p style="text-align: center; font-size: 2em;">eː</p> <p style="text-align: center;">0065, 02D0<br/>Mid Front Vocoid Long<br/>Vowel Continuant</p> | <p style="text-align: center; font-size: 2em;">ej</p> <p style="text-align: center;">0065, 006A<br/>Mid Front Vowel<br/>Diphthong</p>              |
| <p style="text-align: center; font-size: 2em;">aː</p> <p style="text-align: center;">0061, 02D0<br/>Open Central Vocoid<br/>Long Vowel Continuant</p>         | <p style="text-align: center; font-size: 2em;">aj</p> <p style="text-align: center;">0061, 006A<br/>Mid Front Vowel<br/>Diphthong</p>                | <p style="text-align: center; font-size: 2em;">ẽu̯</p> <p style="text-align: center;">1EBD, 0075, 032F<br/>Mid Front Nasal Vowel<br/>Diphthong</p> | <p style="text-align: center; font-size: 2em;">ẽj̃</p> <p style="text-align: center;">1EBD, 006A, 0303<br/>Mid Front Nasal Vowel<br/>Diphthong</p> |
| <p style="text-align: center; font-size: 2em;">tʃ</p> <p style="text-align: center;">0074, 0361, 0283<br/>Alveolo-Palatal Pulmonic<br/>Sibilant Affricate</p> | <p style="text-align: center; font-size: 2em;">o̞a</p> <p style="text-align: center;">006F, 032F, 0061<br/>Mid Front Vowel<br/>Diphthong</p>         | <p style="text-align: center; font-size: 2em;">e̞a</p> <p style="text-align: center;">0065, 032F, 0061<br/>Mid Front Vowel<br/>Diphthong</p>       | <p style="text-align: center; font-size: 2em;">a̞u̯</p> <p style="text-align: center;">0061, 0075, 032F<br/>Mid Front Vowel<br/>Diphthong</p>      |
| <p style="text-align: center; font-size: 2em;">ẽj̃</p> <p style="text-align: center;">0250, 0303, 006A, 0303<br/>Mid Front Nasal Vowel<br/>Diphthong</p>      |  |  |  |



## Appendix 10 - Diacritics

### Diacritics

|   |                                |   |                              |    |                            |
|---|--------------------------------|---|------------------------------|----|----------------------------|
|   | Undefined escape character     | ~ | Nasalized                    | .. | Centralized                |
| + | Advanced                       | - | Retracted                    | ˊ  | RisingTone                 |
| ◦ | Voiceless                      |   | Implosive                    | ˆ  | Syllabic                   |
| ˈ | Ejective                       | ʕ | Pharyngealized               | ˋ  | Falling tone               |
| ˘ | Non-syllabic                   | ˑ | No audible release           | ˗  | Rhotic hook                |
| ˙ | Advanced tongue root           | ː | Apical                       | ˘˘ | Extra low tone             |
| ˚ | Low rising tone                | ˙ | Less rounded                 | ˑ  | Dental                     |
| ˜ | Velarized or Pharyngealized    | ↘ | Global fall                  | ˘˘ | Velarized                  |
| ˊ | High tone                      | ˊ | High rising tone             | h  | Aspirated                  |
| j | Palatalized                    | ˊ | Creaky voiced                | ˋ  | Low tone                   |
| l | Lateral release                | ˊ | Mid tone                     | ◻  | Laminal                    |
| ˜ | Linguo-Labial                  | n | Nasal release                | ˙  | More rounded               |
| ˘ | Lowered                        | ˑ | Retracted tongue root        | ↗  | Global rise                |
| ˙ | Rising falling tone            | ˑ | Raised                       | ˘˘ | Extra high tone            |
| ˊ | Breathy voiced                 | ˊ | Voiced                       | w  | Labialized                 |
| ˘ | Extra short                    | ˋ | Mid-centralized              | ↓  | Down-step                  |
| ↑ | Up-step                        | ː | 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

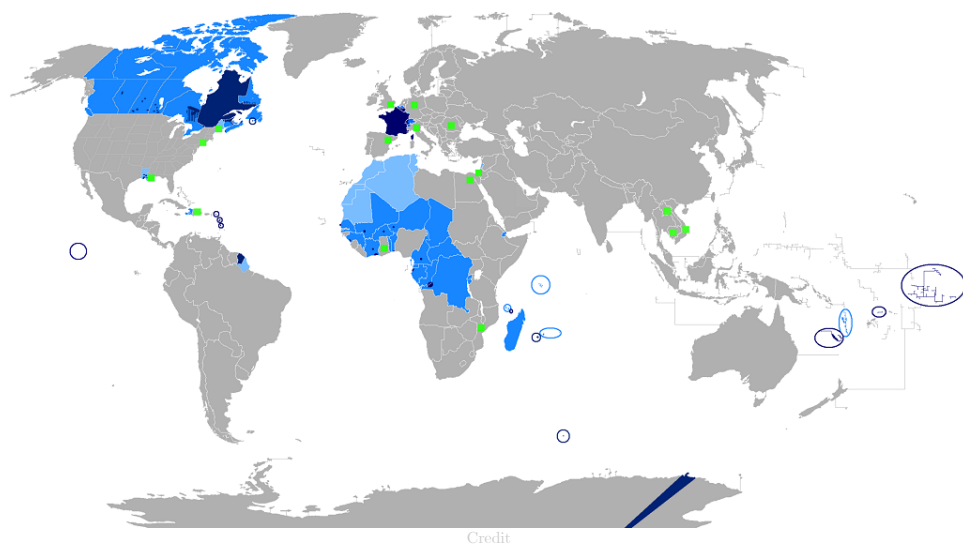
## Appendix 11 - Languages

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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.



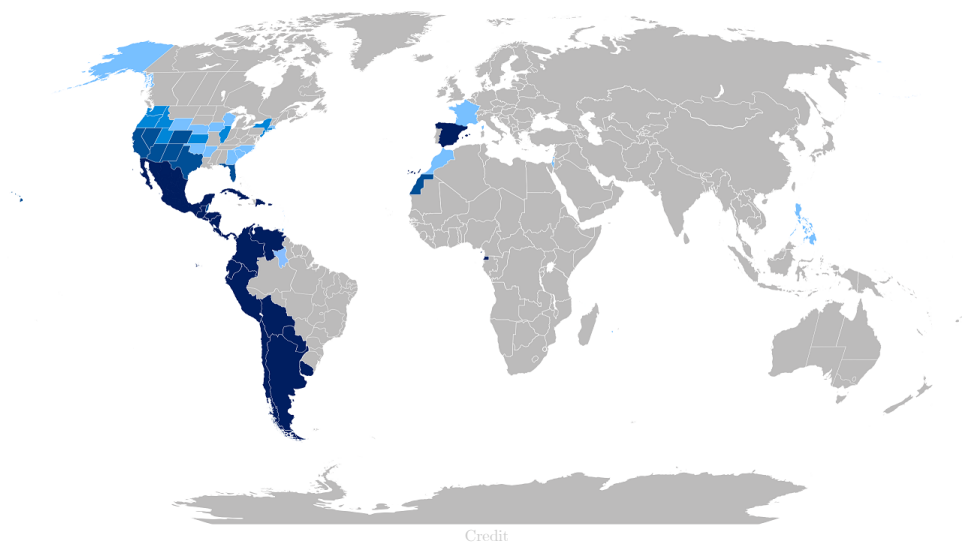
### SPANISH

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

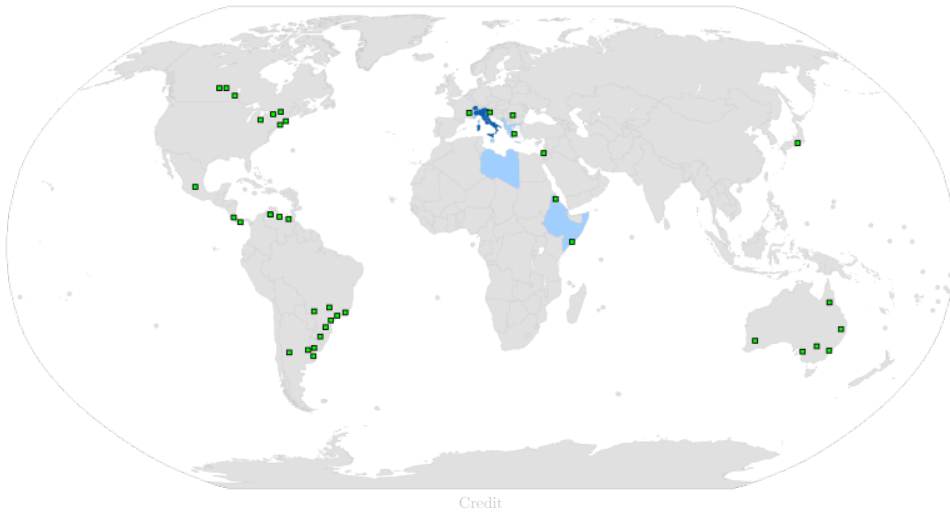
A Romance language of the Indo-European language family. Italian is the closest national language to Latin, from which it descends via vulgar Latin of the Roman Empire. Taking into account both national and regional languages, it is seen that Italian and Sardinian are together the least differentiated 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.



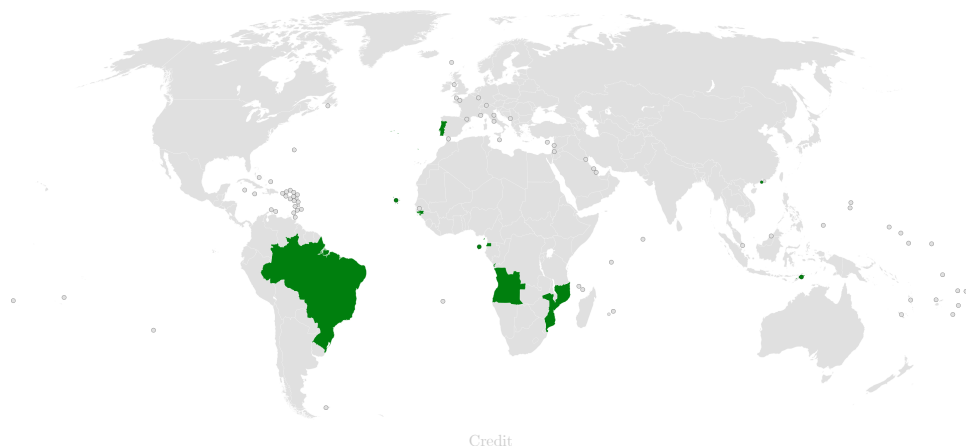
### PORTUGUESE

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

## Appendix 11 - Languages

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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.

## Appendix 11 - Languages

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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.

## Appendix 11 - Languages

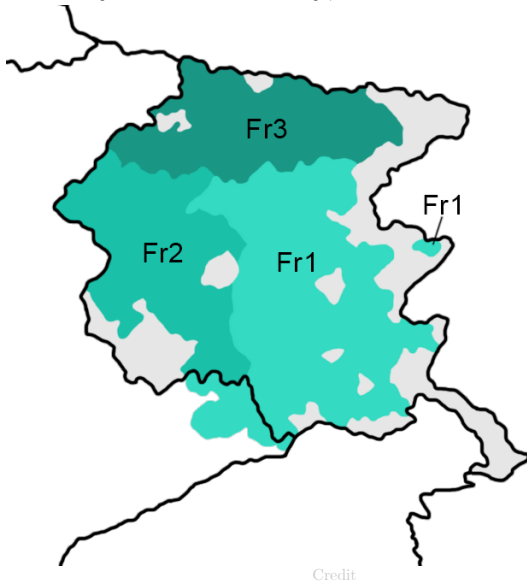
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### FRIULIAN

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.



## Appendix 11 - Languages

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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".



Credit