**SSWL Design Example: Brazilian Portuguese Study**
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This is an example of how we plan to use the SWLL database in a study of microparametric variation within the DP in Brazilian Portuguese (BP), the PhD thesis project of Ananda Lima.

The powerful search functions of SWLL would be used to investigate the patterns of variation and the implicational relations and the exact differences between the grammars of individual speakers. Some factors of variation have been previously identified in Brazilian Portuguese (e.g. agreement within the DP and subject verb agreement) but we hope to also identify other patterns that have not been noted so far.

Taking the current design at http://sswl.railsplayground.net as a basis, each speaker will be treated as a separate language. Properties will be sentences, with associated values (yes/no/NA). The powerful search functions will reveal the implicational relations between the sentences (which individual grammars exist), measure similarities between speakers/languages and locate exactly how individual speakers differ. The mapping functions will allow determining which patterns correlate with the local linguistic environments.

Here is an example, based on a pilot questionnaire in the Brazilian Portuguese study, suppose there were 4 speakers ("languages") and 4 sentences ("properties" A, C, C and D. (yes/no/NA):

A. Os menino comeu o bolo todinho
   The-pl boy ate the cake all

B. Os menino comer**am** o bolo todinho.
   The-pl boy ate-**pl** the cake all

C. Os menino**s** comer**am** o bolo todinho.
   The-pl boy-**pl** ate-**pl** the cake all

D. Os menino**s** comeu o bolo todinho.
   The-pl boy-**pl** ate the cake all

   "The boy ate the whole cake!"

Here are the properties values for each language/speaker (based on the results obtained from the pilot questionnaire):

| Speaker 1: | Speaker 2: | Speaker 3: | Speaker 4: |
|---|---|---|---|
| (A) -no | (A) - yes | (A) - yes | (A) - yes |
| (B) - no | (B) - no | (B) - yes | (B) - yes |
| (C) - yes | (C) - yes | (C) - yes | (C) - yes |
| (D) - no | (D) - no | (D) - no | (D) - yes |

The powerful search functions of the SWLL can be used to find the implicational relations in the patterns, map the variability and model the variability in theoretical terms.

"Acceptance of sentence (D) by a speaker/language implies the acceptance of (B) by that speaker" (eventually leading us to (D)>>(B)>>(A)>>(C) in the example above).

## Appendix: Example Factors to be considered in the Brazilian Portuguese study.

Sample list of factors being considered in the creation of properties in the study:[1]

1. DP: Agreement on noun
2. DP: Agreement on pre-nominal possessive
3. DP: Agreement on definite determiner
4. DP: Agreement on indefinite determiner
5. DP: Agreement on demonstrative
6. DP: Agreement on pre-nominal adjectives
7. DP: Agreement on post-nominal possessor
8. DP: Agreement on post-nominal adjectives type 1
9. DP: Agreement on post-nominal adjectives type 2
10. DP: Agreement on numerals
11. DP: Agreement on quantifier in DP initial position
12. DP: Agreement on floated quantifier in DP final position
13. DP: Agreement on floated quantifier outside DP (clause medial)
14. DP: Agreement on floated quantifier outside DP (clause final)
15. DP: Agreement on predicative adjective preceded by copula
16. DP: DP Agreement on Adjective in noun ellipsis
17. DP: Agreement on Possessive in noun ellipsis
18. DP: Agreement on determiner in noun ellipsis possession
19. V: $2^{nd}$ person singular agreement marking on verb (SV)
20. V: $1^{st}$ person plural agreement marking on verb (SV)
21. V: $3^{rd}$ person plural agreement marking on verb (SV)
22. V: $2^{nd}$ person singular agreement marking on verb (VS)
23. V: $1^{st}$ person plural agreement marking on verb (VS)
24. V: $3^{rd}$ person plural agreement marking on verb (VS)
25. V: $2^{nd}$ person singular agreement marking on verb (SV)
26. V: $1^{st}$ person plural agreement marking on verb (SV)
27. V: $3^{rd}$ person plural agreement marking on verb (SV)
28. RC: Presence of *quem* as a complementizer
29. RC presence of chopping RCs
30. RC: presence of resumptive RCs
31. RC: $3^{rd}$ person plural agreement with RC head on the verb of a pied-piping RC

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[1] Note, that these factors are not the SWLL properties themselves, but the factors that go into consideration when formulating sentences/properties. For example, the example sentences above combine the factors "1. Agreement on Noun" and "21. $3^{rd}$ person plural agreement marking on verb (VS) " to create a paradigm (with sentence (A): 1.No, 21. No; sentence (B): (1.No, 21. Yes); sentence (C): 1.Yes, 21. Yes) and sentence (D): 1.Yes, 21.No).

32. RC: 3<sup>rd</sup> person plural agreement with RC head on the verb of a Chopping RC
33. RC: 3<sup>rd</sup> person plural agreement with RC head on the verb of a Resumptive RC
34. PRON: Presence of subject second person singular *tu*
35. PRON: Presence of subject second person (clitic?) ce
36. PRON: Presence of subject second person (clitic?) *oce*
37. PRON: Presence of subject first person plural *nos*
38. PRON: Presence of subject first person plural *a gente*
39. PRON: presence of 2<sup>nd</sup> person singular *eu* as a direct object
40. PRON: presence of 2nd person singular accusative clitic *te* as a drirect object
41. PRON:   presence of 2<sup>nd</sup> person singular "nominative" *voce* as a direct object
42. PRON: presence of 2<sup>nd</sup> person singular (clitic?) ce as a direct object (TBA)
43. PRON: presence of 2<sup>nd</sup> person singular "nominative" *oce* as a direct object
44. PRON: presence of 2<sup>nd</sup> person singular "nominative" *tu* as a direct object
45. PRON: Presence of third person accusative clitic o as a direct object
46. PRON: Presence of third person "dative" clitic lhe as a direct object
47. PRON: Presence of third person "nominative" ele as a direct object
48. PRON: presence of 1st person plural accusative clitic *nos* as a direct object
49. PRON: Presence of third person "nominative" nós as a direct object
50. PRON: Presence of first person "nominative" a gente as a direct object
51. PRON: Presence of third person plural accusative clitic os as a direct object
52. PRON: Presence of third person plural "dative" clitic lhe as a direct object
53. PRON : Presence of third person plural "nominative" ele as a direct object