A. Background

(1) What role does grammaticality play in judgments of well-formedness?

(2) Summary of presentation
   • Experiments
   • Results
   • Analysis
   • Conclusion

(3) Experimentally elicited well-formedness judgments in controlled experimental setting.

(4) Experimentally elicited well-formedness judgments:
   (a) Speakers intuit a continuum of well-formedness paralleling phonotactic probability (Coleman & Pierrehumbert, 1997; Frisch et al., 2000).
       Example: /blɪk/ vs. /sfɪk/
   (b) Neighborhood Density is also known to influence well-formedness judgments (Ohala & Ohala, 1995; Greenberg & Jenkins, 1964; Bailey & Hahn, 2002).
       A word with many neighbors is judged to be more well-formed than a word with few neighbors.
       Example: /dɑɡ/ (many neighbors) vs. /prɪnθ/ (few neighbors).
   (c) Boersma claims that phonological constraints play a role in determining well-formedness (2004) and Frisch et al. (2001) argue for the role of OCP in determining well-formedness judgments in Arabic.

(5) How do these three factors interact?

(6) We conducted (are conducting) a series of experiments to test whether phonological constraints, independent of other known factors, influence well-formedness judgements, or if these constraints are irrelevant in the determination of well-formedness.

B. Experiments 1 and 2

(7) Method
   We utilized an established well-formedness task common in psycholinguistic research. Subjects were asked to rate the acceptability of non-words.
   Experiment 1: Responses ranged on a scale from 1 (best) to 7 (worst).
   Experiment 2: Subjects responded yes or no to the question, “Is this word a possible word of English?”
(8) Subjects
- Experiment 1:
  20 native English speaking undergraduates
- Experiment 2:
  30 native English speaking undergraduates
Data from non-native English speakers was excluded.

(9) Experiments 1 and 2 Materials:
  (a) The subjects responded to a random ordering of monosyllabic nonsense forms. 21 total target items were controlled in triplets, (i.e. / vork/, / flork/, / strork/) varying only by onset length (1-, 2-, or 3-segment onset). Frequency and neighborhood density were matched across the three conditions.
  (b) Target items were randomized with an additional 20 distractors.

(10) List of stimuli

<table>
<thead>
<tr>
<th></th>
<th>CC</th>
<th>CCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>vork</td>
<td>flork</td>
<td>strork</td>
</tr>
<tr>
<td>qarθ</td>
<td>svarθ</td>
<td>sstrθ</td>
</tr>
<tr>
<td>viʃ</td>
<td>kwıʃ</td>
<td>skrıʃ</td>
</tr>
<tr>
<td>zılm</td>
<td>twılm</td>
<td>skrılm</td>
</tr>
<tr>
<td>rɑrv</td>
<td>klɑrv</td>
<td>strɑrv</td>
</tr>
<tr>
<td>basp</td>
<td>plasp</td>
<td>strasp</td>
</tr>
<tr>
<td>ðæentʃ</td>
<td>spæentʃ</td>
<td>stræntʃ</td>
</tr>
</tbody>
</table>

(11) Procedure
Subjects heard tokens through headphones and responded by typing 1 through 7 (Experiment 1), and 1 or 2 (Experiment 2). Subjects were instructed that 1 = possible English word, and 7 = not possible English word, or alternately, for the second experiment, 1 = yes, and 2 = no.

(12) Possible outcomes
  (a) Onset length is not a factor in determining well-formedness
  (b) Onset length is a factor
    - Gradient response based on onset length.
    - Categorical response: We could see an effect of *COMPLEX (1 vs. n)

C. Results (Experiments 1 and 2)

(13) Experiment 1a (1-7 judgments): A significant main effect of onset length!
[F(2,38)=4.121; p<0.024]
(14) Mean Responses of Experiment 1

(15) Experiment 1b (Yes/No judgments): Again a significant main effect of onset length [F(2,58)=16.179; p<0.001]

(16) Mean Responses of Experiment 2

(17) What could possibly account for these results? You suggest it, we tested it. Except, now that you mention it, sonority…
(18) A cute looking graph of the apparent something that is happening with sonority. Mean onset sonority is calculated as the average sonority of each individual onset phoneme.

(19) Wow, cool. And some other reasons why we might think something’s happening:
   a.) Cross-linguistic data on onset preferences (Steriade, 1982, 1988; McCarthy & Prince, 1986)
   b.) Child cluster simplification sky > [gai] (Gnanadesikan 1995; our very own Ohala, year(s)?)
   c.) Functional, perceptual motivation (Stevens 1989; Ohala 1992; Delgutte 1997; Warner 1998).

D. Experiment 3: testing the two effects we might be seeing. Onset size and sonority.

(19) Method
   We used the same well-formedness task as that described in Experiment One. Subjects were asked to rate the acceptability of non-words.
   • Responses ranged on a scale from 1 (best) to 7 (worst).

(20) Subjects: 21 native English speaking undergraduates

(21) Materials: pairs of non-words controlled for phonotactic probability and neighborhood density, conforming to the following characteristics.
   a) Each contain non-occurring onset clusters of 2 or 3 phonemes in complexity.
      (That is to say, the onsets as a whole do not exist in any English word)
   b) One member of each pair conforms to SSP (or something like that), while the other member contains the same phonemes in reversed order (not conforming).
(22) Example list of stimuli

<table>
<thead>
<tr>
<th></th>
<th>Obeys Sonority</th>
<th>Violates Sonority</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2 onset phonemes</strong></td>
<td>fnape</td>
<td>Nfape</td>
</tr>
<tr>
<td></td>
<td>vriss</td>
<td>Rviss</td>
</tr>
<tr>
<td></td>
<td>pmazz</td>
<td>Mpazz</td>
</tr>
<tr>
<td><strong>3 onset phonemes</strong></td>
<td>thnlem</td>
<td>Lnthem</td>
</tr>
<tr>
<td></td>
<td>zmrede</td>
<td>Rzmude</td>
</tr>
<tr>
<td></td>
<td>pmreeze</td>
<td>Rmpreeze</td>
</tr>
</tbody>
</table>

(23) Procedure: Subjects saw tokens on a computer screen and responded by typing 1 through 7. Subjects were instructed that 1 = possible English word, and 7 = not possible English word. (so high number responses are ‘worse’ than low number responses)

(24) Possible outcomes:
   a.) We could see an effect of onset size (like in Exps 1 and 2), or not.
   b.) We could see an effect of sonority, or not.
   c.) We could see an interaction of the two which would complicate matters.

E. Results (Experiment 3)

(25) The overall patterns:
   a.) adding segments to the onset makes judgments worse
   b.) things that obey sonority are judged better than those that don’t

(26) Significant interaction of sonority and length!
Test of simple effects of phonemes for the two levels of sonority reveals some interesting stuff:
   a.) significant effect of phonemes when condition obeys sonority
   b.) not clearly significant effect of phonemes when condition violates sonority (by items, but not by subjects)

Explaining 27b: either there really is no effect of phonemes here, or maybe it’s a ceiling effect caused by two competing variables both trying to influence negatively peoples well-formedness judgments, namely violating sonority and being big.

F. Discussion

What about Experiments 1 and 2?

Interesting inversion of effect of onset size happening!

So, what’s the difference between this and that?
   a.) Mode: Experiments 1 and 2 presented auditorily, but 3 presented visually.
   b.) Items: Only CC vs CCC onsets happened in experiment 3, but Experiments 1 and 2 contained C onsets as well.
   c.) Grammaticality: Let’s talk about this one…
   d.) The things you’re about to tell us: Let’s talk about these too…

E. Acknowledgments
Benjamin Tucker and Lynnika Butler were instrumental in investigating Experiments 1 and 2 reported here and elsewhere, as well as many follow-up experiments alluded to but not officially reported here.

G. References


