Violating Burzio’s generalization is bad, no matter how often you see it
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Frequency of exposure has been shown to be a potent factor in language acquisition and processing. For example, recent results indicate that readers can rapidly adapt their expectations along an experimental session based on the frequency with which they are exposed to competing interpretations of ambiguous sentences (Fine et al., 2013; *inter alia*). Hence, an interpretation that was slow to read initially is read more rapidly as the experimental session progresses. We report evidence indicating that exposure does not override grammatical constraints such as Burzio (1986) ’s generalization.

Verbal nouns (VN) in Japanese combine with the light verb *suru* to form a verbal complex. The accusative marker -o can follow the VN, but -o insertion is constrained by Burzio’s generalization as only VNs that assign a thematic role to an external argument can co-occur with the accusative marker. For example, the unergative *ryoko-o-suru* “to travel” is grammatical, but the unaccusative *haretu-o-suru* “to burst” is ungrammatical (Kageyama, 1993; Miyagawa, 1989; *inter alia*). We report a reading-time experiment providing evidence that there is no relative facilitation as unaccusative VN+o sentences are seen along an experiment.

A non-cumulative self-paced moving-window experiment was conducted with 40 native Japanese speakers who read 20 pairs of unergative items and 20 pairs of unaccusative items (see examples in (1), also Table 1 for frequency counts of the VNs used). Each item had a version with the accusative marker and a version without the marker after the VN (*with* or *without*, for short). Verb type and marker were within-participant factors. As in traditional analyses, the 2-way interaction of verb (*unaccusative, unergative*) and marker (*with, without*) was crucial. Moreover, a numerical factor (*UnaccWith*) counted the number of times each participant saw trials of the *unaccusative/with* type along the experiment, to measure the impact that exposure to this construction has on reading times. Frequency models predict that infrequent constructions are salient, and the more they are seen, the faster participants read them as they get used to the construction. This should apply to the ambiguous constructions used in the past, but also to the unambiguous sentences used here. The question then is whether participants get used to unaccusative VN+o and read it faster as the experiment progresses.

Results for log-transformed reading times were as follows. At the crucial region (R5: VN+[o]+*suru*), there was an interaction between verb type and marker (*p*=.043; see Figure 1; also Figure 2 for similar trends in R6) indicating that the inclusion of the marker was costlier for unaccusatives than for the unergatives (supporting Kageyama, 1993; Miyagawa, 1989; *contra* Grimshaw & Mester, 1988). Moreover, there was a 3-way interaction (*p*=.025) between verb type, marker and *UnaccWith* suggesting that the relative slowdown for items of the *unaccusative/with* type increased as participants saw more of these items. This is the opposite of what frequency models predict (Fine et al., 2013; and references therein), but it is compatible with the assumption that Burzio’s generalization is a hard-wired constraint on accusative case, which frequency of exposure cannot override.
(1) a. Unergative:

R1  
Kimura-san ni yoruto, asa zyui goro nyuin-tyu no
Kimura to according morning ten o’clock around hospitalized GEN
R4  
Matumoto-san ga sanpo (-o) -sita youda.
Matumoto NOM walk (ACC) did aux-v

[Literally] ‘According to Mr. Kimura, Mr. Matsumoto who is in the hospital did a walk around ten o’clock in the morning.’

b. Unaccusative:

R1  
Intanetto ni yoruto, hatizyunen-dai ni nihon -sya no yusyutu ga
Internet to according 1980s in Japanese car GEN export NOM
R5  
zouka (-o) -sita youda.
increase (ACC) did aux-v

[Literally] ‘According to the Internet, Japanese car exports did an increase in the 1980s.’

Table 1. Occurrence of VNs used in the experiment in the Balanced Corpus of Contemporary Written Japanese Data version 1.1 (accessed on February 27th 2017; National Institute for Japanese Language and Linguistics; $\chi^2(1)=448.76$, $p<.0001$).

<table>
<thead>
<tr>
<th>Verb</th>
<th>Case Marker</th>
<th>Without</th>
<th>With</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unergative</td>
<td></td>
<td>1477 (85.62%)</td>
<td>248 (14.38%)</td>
</tr>
<tr>
<td>Unaccusative</td>
<td></td>
<td>3076 (99.87%)</td>
<td>4 (0.13%)</td>
</tr>
</tbody>
</table>

Figures 1. Model-estimates for Region 5 RTs  
Figures 2. Model-estimates for Region 6 RTs

**Analyses.** Statistical analyses were conducted on R version 3.3.0 (R Core Team, 2016). Due to skewness, reading times were log-transformed and then analyzed using mixed-effects models (Bates et al., 2015) with backward selection. (Similar trends were observed with untransformed RTs.) Both numerical factors (UnaccWith and the log of the total number of trials including filler sentences) were scaled and centered for the analyses.

**Main Reference**