Teasing apart the predictors:
Order vs age of L2 acquisition in L3 grammatical gender transfer

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Objectives

- Does order of acquisition influence grammatical gender transfer at the L3 initial state?
- Does age of L2 acquisition influence grammatical gender transfer at the L3 initial state?

Introduction

Research in the relatively new field of third language (L3) acquisition proves uniquely complex among adult language acquisition research in that there are two potential source languages which could **transfer** their grammatical information at the initial stage of the L3. Current models of the L3 initial state diverge in terms of whether sources language(s) for L3 initial transfer are selected based on factors such as order of acquisition [1] or typological similarity [2].

In previous work, this author looked to test the predictions of several models of L3 acquisition in relation to L3 German grammatical gender acquisition. Results showed that L3 German beginner learners with L1 English/L2 Spanish outperformed L1 Spanish/L2 English learners with similar L3 proficiency in identifying grammatical gender errors in German definite determiners [3].

The following work looks to further test these findings by examining true initial state L3 learners, a group which is distinct from the "beginner" learners discussed in the previously mentioned study [4]. Doing so allows for further investigation as to whether the previous results represent true initial state transfer of grammatical gender, or rather some form of learning advantage in the L1 English/L2 Spanish participants in the previous study.

Additionally, this work looks to tease apart the degree to which **order of L2 acquisition** vs **age of L2 acquisition** serve as predictors of L3 initial success, in order to pinpoint exactly what factors may be playing a role in influence the L3 initial state.
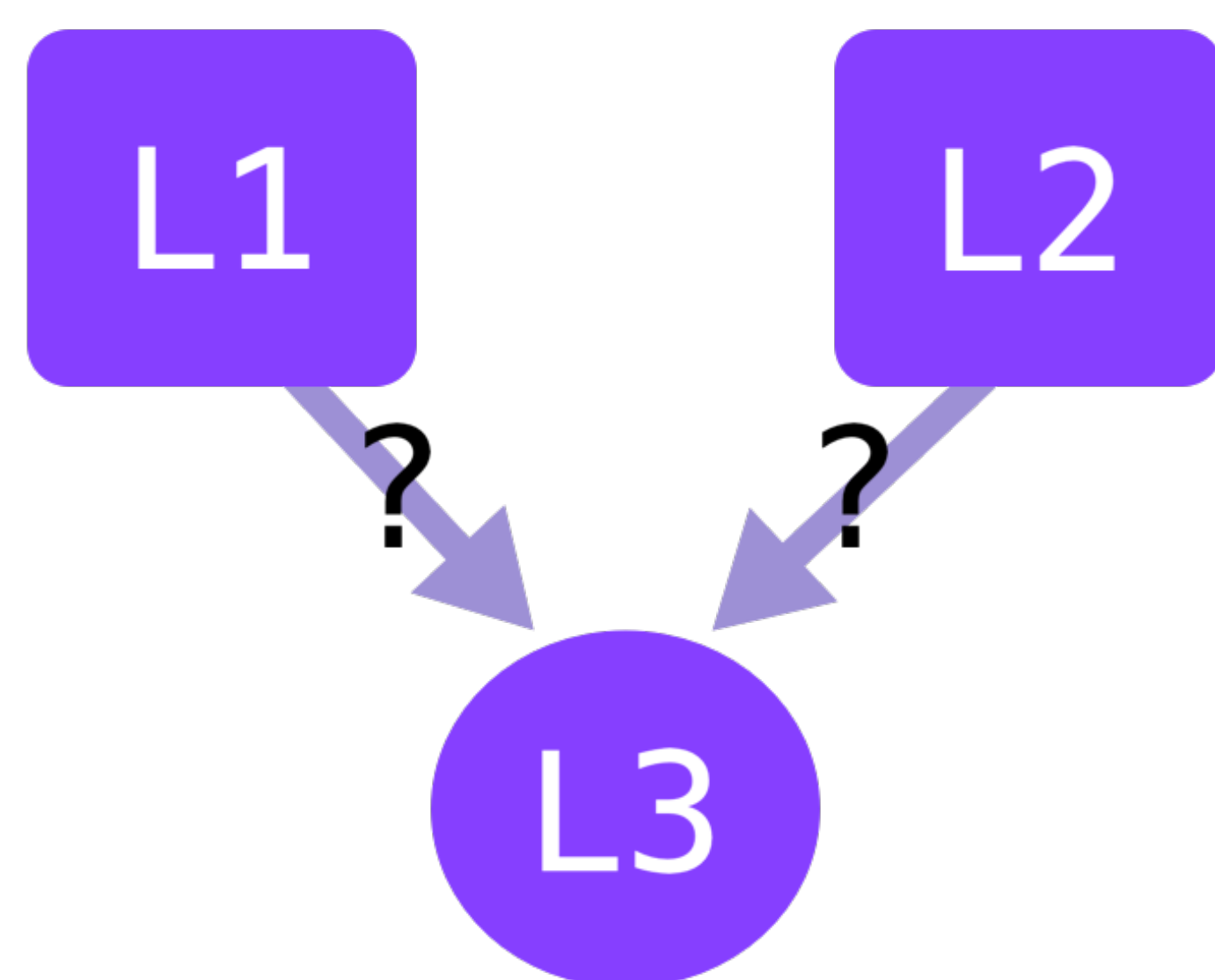

Figure 1:Possible L3 Transfer Sources

Methods

Participants were presented with a German-based artificial language. This language consisted of 9 nouns (3 in each gender), as well as gender-maked adjectives and determiners. In the main experimental task, participants were presented with a picture similar to the one presented below, followed by two recordings, one of which included a grammatical gender error. After listening to both recordings, participants were asked to select the recording that was grammatically accurate.
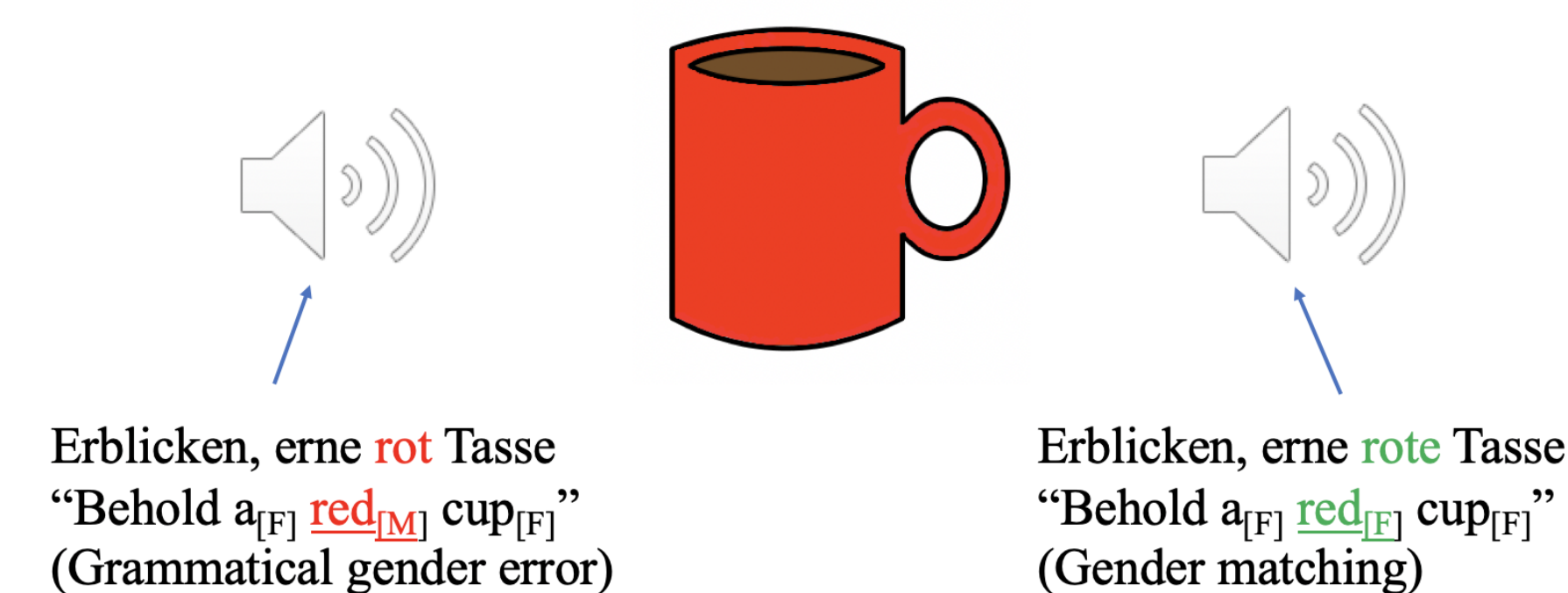

Erblicken, erne rot Tasse
"Behold a[F] red[M] cup[F]"
(Grammatical gender error)

Erblicken, erne rote Tasse
"Behold a[F] red[F] cup[F]"
(Gender matching)

Figure 2:Example stimulus with transcription and gloss.

Key Result

When the two variables of order of acquisition and ago of acquisition are both considered, preliminary results show an advantage of L2 Spanish in acquiring L3 German grammatical gender. These results fall in line with the L2 Status Factor Model [1]

Analysis

As shown in Figure 3, on the surface, no clear difference can be seen between language groups in terms of their success at the task. While statistical tests examining effects of age of acquisition (AoA) or language background separately found no significant trends (more details available upon request), a logistic regression accounting both of these factors as well as the random variables of question order, participant, and whether the correct answer was on the left or the right side of the screen, found that once age acquisition was controlled for, the L1 English/L2 Spanish participants were significantly more likely to identify grammatical gender errors. It should noted, however, that the R^2 value for this model was very small.

$$Response \sim language\ background + AoA$$

Variable	Estimate	St. Error	z-score
Constant	0.366	.189	1.94
Order of Acquisition			
L1 English L2 Spanish	**0.551**	**.212**	**2.60*****
L1 Spanish L2 English	0.325	.198	1.64
Base = L1 Mandarin L2 English			
Age of L2 Acquisition	-0.040	.024	.099
R2 Fixed	.031		
R2 Total	.026		

Table 1:Mixed effects logistic regression results

Participants

Sequential bilinguals: (n=15, 12 female: mean age = 20.92 years, age range = 18-29 years)

- L1 English L2 Spanish (n=7)
- L1 Spanish L2 English (n=4)
- L1 English L2 Mandarin (n=4)

Participant qualifications included:

1. "Upper Intermediate" or higher L2 proficiency based on a LexTALE vocabulary assessment [5]
2. No previous experience with German or other gendered languages

All participants were sequential bilinguals. The average age of L2 acquisition was 7.8, with a wide range from 5 to 14.

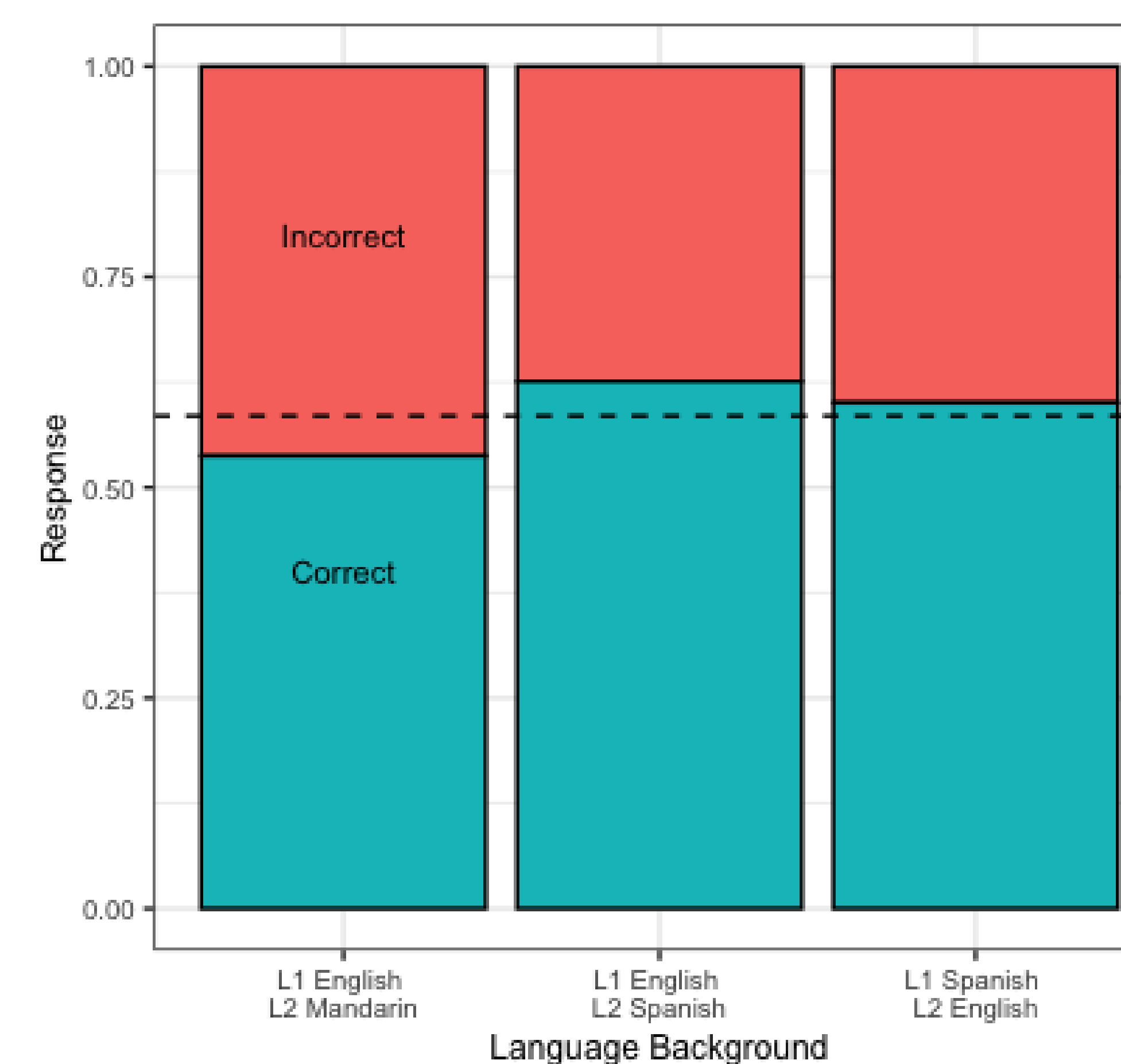Data collection was interrupted as a result of COVID19, so results presented here are priliminary.

Results

Figure 3:Participant responses by language background. The dotted line represents the average across all three groups.

Conclusion

While additional data is required to confirm these findings, and the R^2 values found here are very small, the preliminary results tentatively support the findings of Brown [3] and the L2 Status Factor model [1]. While these results demonstrate that other factors such as age of L2 acquisition may also play a role at the L3 initial state, they also suggests that a late-acquired L2 grammatical gender system can serve as a better advantage in L3 grammatical gender acquisition than an L1 gender system. This suggests some form of fundamental difference between native and non-native grammatical gender systems in terms of their transferability to a newly acquired language.

Future Research

Future research could consider some of the following research topics

- A longitudinal study of L3 grammatical gender acquisition
- Considering a wider degree of languages, including langauges with other types of nominal category systems.
- Additional analysis of grammatical number, and other potentially intertwined predictor variables

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