

Verbal mismatch in French Right-Node
Raising: Speeded grammaticality
judgments **but no EEGs**

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Overview

- Right-Node Raising
- The Shiraishi et al. (2019) data
- Why a replication study?
- Experiment 1: Tense mismatch for syncretic and non-syncretic forms
- Experiment 2: Right node raising for syncretic and non-syncretic forms
- Discussion

Right-Node Raising (RNR)

- Right-Node Raising or Right Peripheral Ellipsis: a right peripheral sequence (typically a constituent) is shared by two or more previous (and typically conjoined) phrases (Ross, 1967; Chaves, 2014)
- (1) a. John detests ~~spinach~~ and Mary likes spinach
(Chaves 2014: 834)
- b. Sandy has ~~been helping us with the job~~ and you have not been helping us with the job. (Pullum & Zwicky 1986: 761)

Mismatch effects in RNR

- Is mismatch possible between the missing element and the shared material?
- No under deletion under syntactic identity accounts (e.g. Kayne 1994)
 - (2) a. *I like ~~playing guitar~~ and I will play guitar. (Chaves 2014: 870)
 - b. *I certainly will ~~clarify the situation~~, and you already have, clarified the situation with respect to the budget. (Pullum & Zwicky 1986: 761)
- Only for syncretic forms under phonological identity accounts
 - (3) I certainly will ~~set the record straight~~, and you already have, set the record straight with respect to the budget. (Pullum & Zwicky 1986: 761)

The Shiraishi et al. (2019) data

- (9) + SYNCRETIC RNR-MATCH Many people already have started to, and some soon will bet on Catalan independence.
- + SYNCRETIC RNR-MISMATCH Many people already have, and some soon will bet on Catalan independence.
- + SYNCRETIC NO-ELLIPSIS Many people already have bet on Catalan independence, and some will soon do so.
- (10) -SYNCRETIC RNR-MATCH Some new hybrid models have started to, and others will continue to appear in the automobile industry.
- SYNCRETIC RNR-MISMATCH Some new hybrid models already have, and others soon will appear in the automobile industry.
- SYNCRETIC NO-ELLIPSIS Some new hybrid models already have appeared in the automobile industry and others will soon do so.
- (11) GRAMMATICAL CONTROL She is someone who will most certainly never opt her children out of NY State testing.
- UNGRAMMATICAL CONTROL *She is someone who has most certainly never opt her children out of NY State testing.

The Shiraishi et al. (2019) data

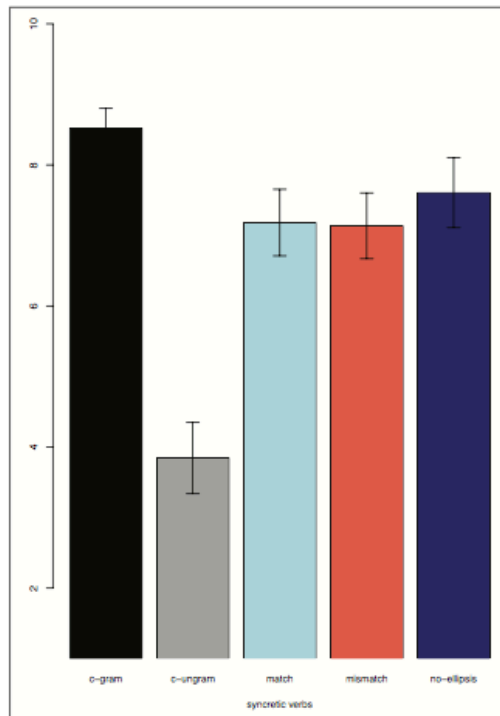


Figure 3: French RNR: verbs with syncretism and controls.

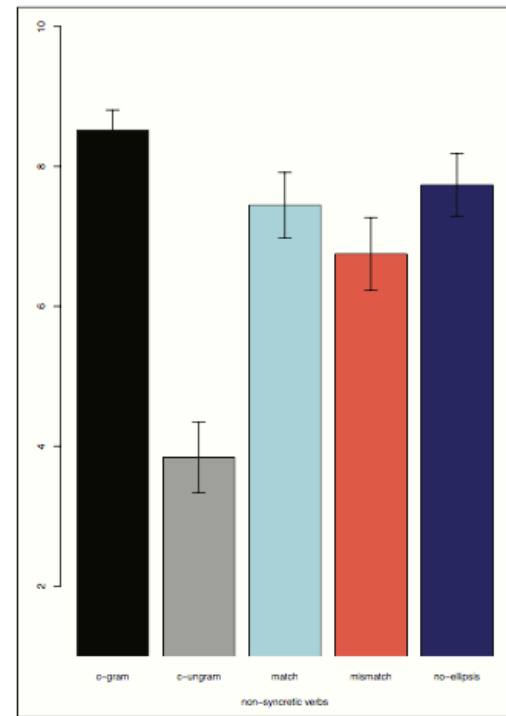


Figure 4: French RNR: verbs without syncretism and controls.

Why a replication study?

- Replicating results with new methods, languages etc. always makes the argument more convincing
- The central result is a null effect: No difference between syncretic and non-syncretic forms
 - Only 24 items (12 for syncretic, 12 for non-syncretic)
 - No direct comparison with ungrammatical controls
 - Items were inspired from corpora (very natural) but included some variation (more noise) which might mask effects
 - Marginal effect of mismatch for non-syncretic verbs
 - More detailed information on underlying processes expected from EEG data.
- Are the Shiraishi et al. results evidence that there is no syntactic or phonological identity constraint or are participants just sloppy?
- Would participants make a difference between syncretic and non-syncretic forms in simple non-RNR environments?

Homophone errors in written French

- Written errors in French are very common, especially for homophones
- Largy, Fayol, & Lemaire (1996) for verb-nou homophones:
Le chimiste prend des liquides (The chemist takes some liquids).
Il les filtre (He filters them). Typical error: Il **les filtros**.
- Hemforth, Fayol, & Pacton (2010) for verb-adjective homophones:
Les femmes **bavardes** du village parlent avec le maire. (The talkative women of the village talk to the mayor.). Typical error: Le femmes **bavardent** ...
- French speakers (both children and adults) not only produce more errors with homophones but are also less sensitive to these types of errors when they read them. From these data, we might have predicted that homophonic mismatches should be easier for RNR as well.
- Consequences for RNR: Repair processes (Arregui et al. 2006) would predict that RNR tense mismatch effects could be due to “sloppiness” or to ease of repair. This should be affected by the same factors as simple tense violations.

Experiment 1: Tense mismatch without RNR

- Tense mismatch with syncretic and non-syncretic forms

Match/syncretic	Tu as parlé à ta voisine.	You have talked to your neighbour.
Mismatch/syncretic	Tu as parler à ta voisine.	You have talk to your neighbour.
Match/non-syncretic	Tu as vu ton ami.	You have seen your friend.
Mismatch/non-syncretic	Tu as voir ton ami.	You have see your friend.

Experiment 1: Tense mismatch beyond RNR

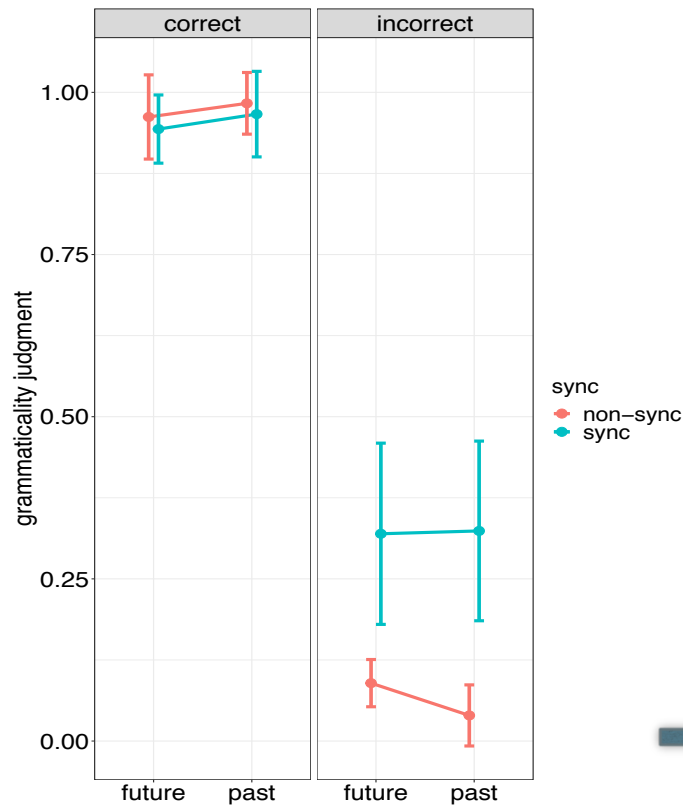
- Tense mismatch with syncretic and non-syncretic forms

Match/syncretic	Tu vas parler à ta voisine.	You will talk to your neighbour.
Mismatch/syncretic	Tu vas parlé à ta voisine.	You will talked to your neighbour.
Match/non-syncretic	Tu vas voir ton ami.	You will see your friend.
Mismatch/non-syncretic	Tu vas vu ton ami.	You will seen your friend.

Experiment 1: Tense mismatch without RNR

- 96 items, 48 syncretic, 48 non-syncretic, 31 participants (run on PCIBex in a controlled lab environment)
- Task: speeded grammaticality judgments
 - Sentences are presented word by word at 225 msec per word
 - Participants have to decide whether the sentence is grammatical (binary decision) within 2000 msec
 - They then indicate on a 3-point scale how confident they are about their judgment.
 - Binary + confidence judgments are transformed to a 6-point rating scale (ungrammatical + high confidence = 1; grammatical + high confidence = 6)

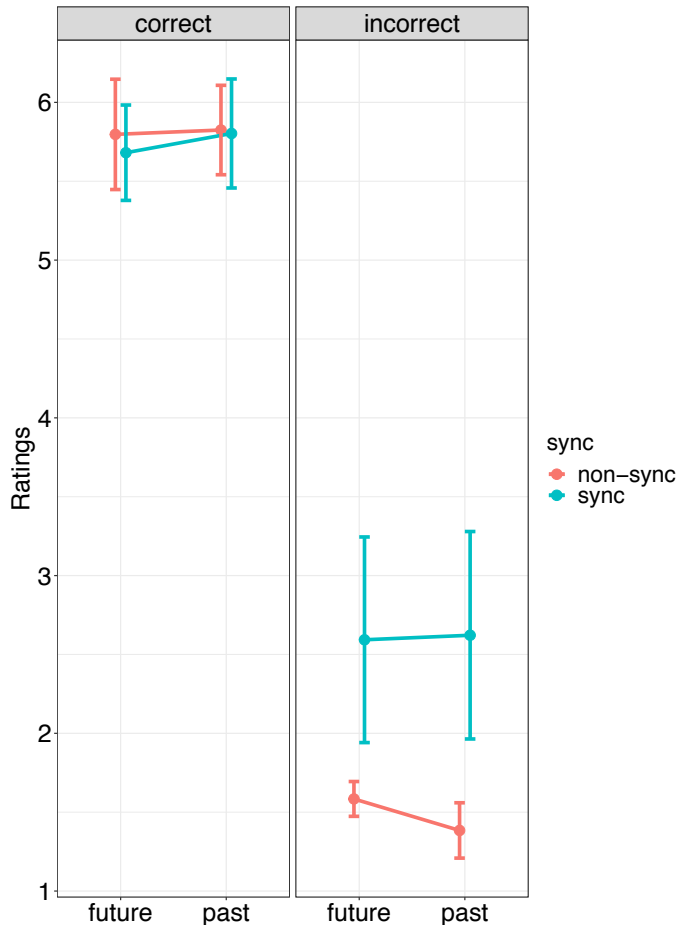
Experiment 1: Tense mismatch without RNR



Grammaticality judgments

	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	0.8982	0.3385	2.654	0.00797	**
sync_contr	1.0739	0.2508	4.282	1.85e-05	***
tense_contr	0.0630	0.2092	0.301	0.76337	
corr_contr	-6.5786	0.2839	-23.169	< 2e-16	***
sync_contr:tense_contr	0.3410	0.4181	0.816	0.41472	
sync_contr:corr_contr	3.3478	0.4342	7.710	1.26e-14	***
tense_contr:corr_contr	-1.1915	0.4153	-2.869	0.00412	**
sync_contr:tense_contr:corr_contr	1.2871	0.8305	1.550	0.12119	

Experiment 1: Tense mismatch without RNR

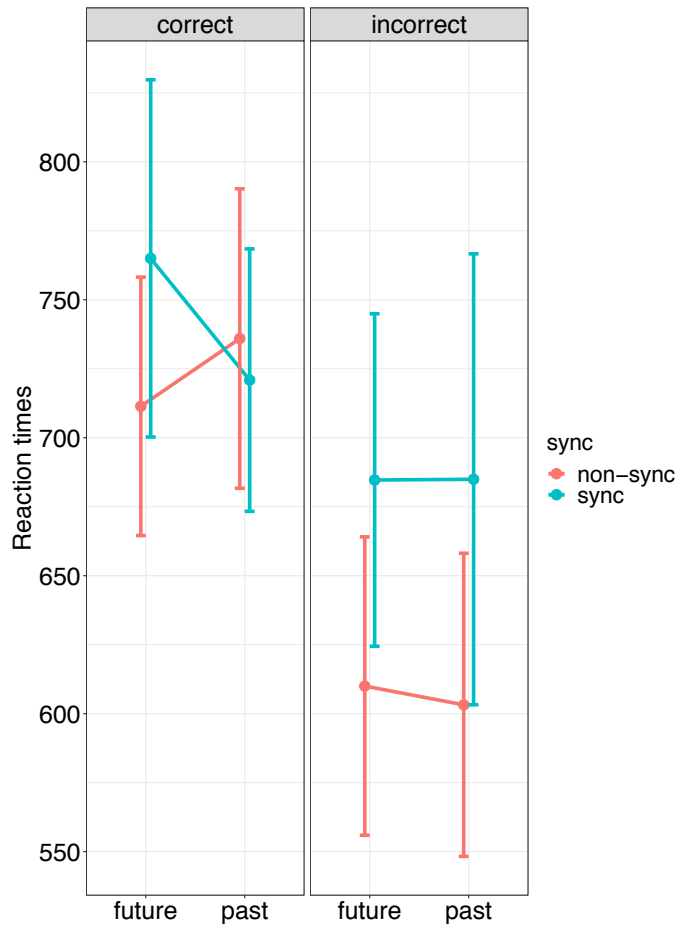


« Ratings » (binary decision + confidence)



	Estimate	Std. Error	z value	Pr(> z)	
sync_contr	0.924516	0.166572	5.550	2.85e-08	***
corr_contr	-5.621029	0.183030	-30.711	< 2e-16	***
tense_contr	-0.007155	0.127110	-0.056	0.9551	
sync_contr:corr_contr	2.127582	0.263442	8.076	6.69e-16	***
sync_contr:tense_contr	0.443909	0.253318	1.752	0.0797	.
corr_contr:tense_contr	-0.308454	0.252085	-1.224	0.2211	
sync_contr:corr_contr:tense_contr	-0.268462	0.502521	-0.534	0.5932	

Experiment 1: Tense mismatch without RNR



Reaction times
(statistical analysis with logRTs)

(Intercept)	6.438e+00	4.231e-02	1.960e+01	152.170	< 2e-16	***
sync_contr	7.511e-02	1.910e-02	1.265e+02	3.933	0.000137	***
tense_contr	-1.085e-02	1.588e-02	2.263e+03	-0.684	0.494307	
corr_contr	-1.383e-01	1.591e-02	2.298e+03	-8.694	< 2e-16	***
sync_contr:tense_contr	-2.567e-02	3.175e-02	2.263e+03	-0.808	0.419000	
sync_contr:corr_contr	8.352e-02	3.181e-02	2.298e+03	2.625	0.008715	**
tense_contr:corr_contr	-4.398e-03	3.181e-02	2.295e+03	-0.138	0.890044	
sync_contr:tense_contr:corr_contr	7.480e-02	6.362e-02	2.295e+03	1.176	0.239834	

Intermediate discussion

- Tense mismatch grammaticality violations are affected by syncretism
 - Violations are less easily detected in grammaticality judgments and ratings
 - Judgments take longer for syncretic forms
- If the acceptability of mismatch-RNR is due to sloppiness of participants or ease of repair, syncretism effects should show up there as well.
- Note: this is different from a phonological identity hypothesis, more like Arregui et al.'s (2006) repair process.

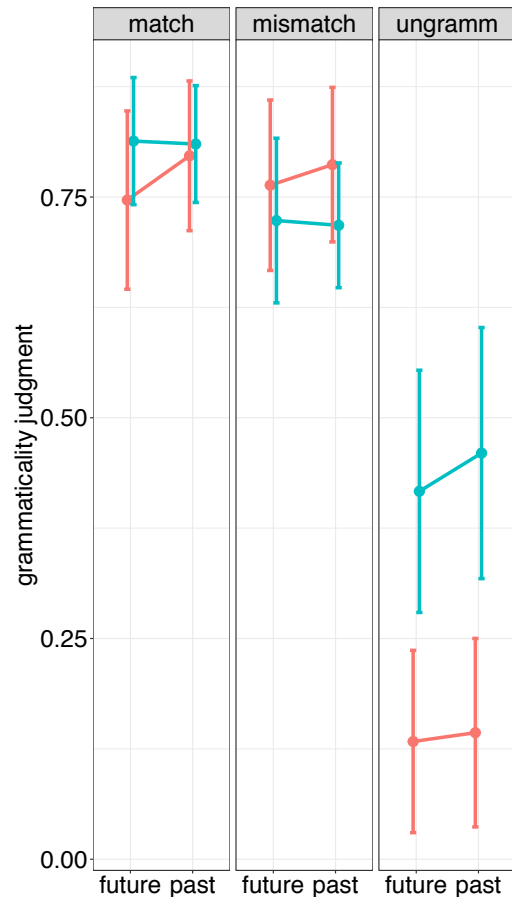
Experiment 2: Mismatch effects in RNR constructions

Sync-match	Invité à la fête du quartier, tu auras bientôt ou as déjà parlé à ta voisine.	Invited to the block party, you'll soon have or have already spoken to your neighbor.
Sync-mismatch	Invité à la fête du quartier, tu vas bientôt ou as déjà parlé à ta voisine.	Invited to the block party, you're about to or have already spoken to your neighbor.
Sync-ungramm	Invité à la fête du quartier, tu vas pendant toute la soirée parlé à ta voisine.	Invited to the block party, you will all night spoken to your neighbor.
Non-sync-match	Grâce à leur voyage, les filles auront bientôt ou ont déjà vu un pélican.	Thanks to their journey, the girls will soon have or have already seen a pelican.
Non-sync-mismatch	Grâce à leur voyage, les filles vont bientôt ou ont déjà vu un pélican.	Thanks to their journey, the girls will soon or have already seen a pelican.
Non-sync-ungramm	Grâce à leur voyage, les filles vont sans aucun doute bientôt vu un pélican.	Thanks to their trip, the girls will undoubtedly soon seen a pelican.

Experiment 2: Mismatch effects in RNR constructions

- 48 items, 24 syncretic, 24 non-syncretic, 27 participants (run on PCIbex on the web)
- Task: speeded grammaticality judgments
 - Sentences are presented word by word at 225 msec per word
 - Participants have to decide whether the sentence is grammatical (binary decision) within 2000 msec
 - They then indicate on a 3-point scale how confident they are about their judgment.
 - Binary + confidence judgments are transformed to a 6-point rating scale (ungrammatical + high confidence = 1; grammatical + high confidence = 6)

Experiment 2: Mismatch effects in RNR constructions



Grammaticality judgments

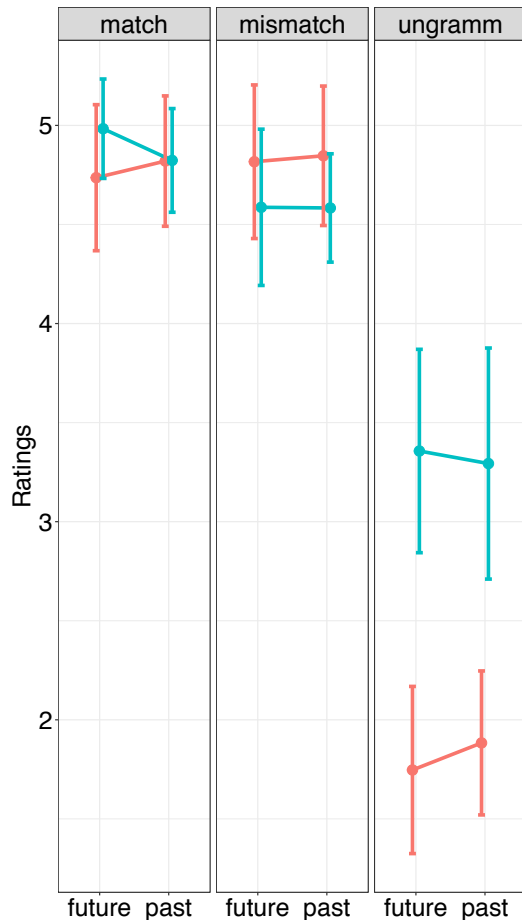
sync
 ● non-sync
 ● sync

Fixed effects:



	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	-0.02387	0.25754	-0.093	0.926143	
sync_contr	0.78126	0.21003	3.720	0.000199	***
tense_contr	0.16654	0.19864	0.838	0.401807	
match_contr1	-0.26561	0.20083	-1.323	0.185985	
match_contr2	-2.93990	0.22191	-13.248	< 2e-16	***
sync_contr:tense_contr	-0.14316	0.39527	-0.362	0.717217	
sync_contr:match_contr1	-0.51046	0.40129	-1.272	0.203358	
sync_contr:match_contr2	1.65037	0.41512	3.976	7.02e-05	***
tense_contr:match_contr1	0.06795	0.40020	0.170	0.865165	
tense_contr:match_contr2	0.17949	0.41137	0.436	0.662600	
sync_contr:tense_contr:match_contr1	-0.01309	0.80059	-0.016	0.986956	
sync_contr:tense_contr:match_contr2	-0.17697	0.82144	-0.215	0.829425	

Experiment 2: Mismatch effects in RNR constructions



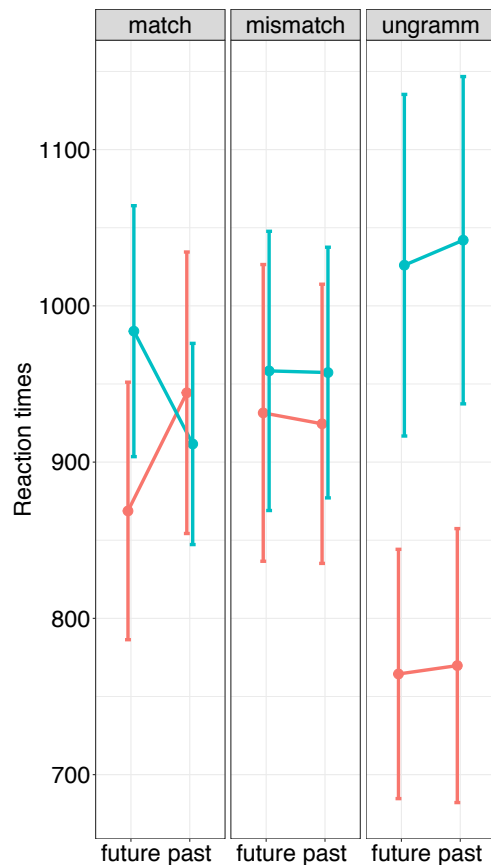
« Ratings » (binary decision + confidence)

sync
● non-sync
● sync



	Estimate	Std. Error	z value	Pr(> z)	
sync_contr	0.91788	0.16451	5.580	2.41e-08	***
tense_contr	0.04519	0.14860	0.304	0.761	
match_contr1	-0.10700	0.14332	-0.747	0.455	
match_contr2	-2.82478	0.16989	-16.627	< 2e-16	***
sync_contr:tense_contr	-0.34612	0.29688	-1.166	0.244	
sync_contr:match_contr1	-0.33738	0.28680	-1.176	0.239	
sync_contr:match_contr2	1.94996	0.30463	6.401	1.54e-10	***
tense_contr:match_contr1	0.13317	0.28627	0.465	0.642	
tense_contr:match_contr2	0.25311	0.30029	0.843	0.399	
sync_contr:tense_contr:match_contr1	0.17920	0.57199	0.313	0.754	
sync_contr:tense_contr:match_contr2	-0.72676	0.60042	-1.210	0.226	

Experiment 2: Mismatch effects in RNR constructions



Reaction times
(statistical analysis with logRTs)

sync
● non-sync
● sync



	Estimate	Std. Error	df	t value	Pr(> t)
(Intercept)	6.697e+00	5.884e-02	2.819e+01	113.825	< 2e-16 ***
sync_contr	1.664e-01	3.787e-02	8.728e+01	4.393	3.13e-05 ***
tense_contr	-2.208e-02	3.454e-02	1.063e+03	-0.639	0.522781
match_contr1	2.772e-02	3.473e-02	1.068e+03	0.798	0.424861
match_contr2	-2.962e-02	3.490e-02	1.062e+03	-0.849	0.396158
sync_contr:tense_contr	2.989e-02	6.906e-02	1.062e+03	0.433	0.665255
sync_contr:match_contr1	-4.216e-03	6.938e-02	1.067e+03	-0.061	0.951550
sync_contr:match_contr2	2.383e-01	6.973e-02	1.063e+03	3.418	0.000655 ***
tense_contr:match_contr1	-6.072e-02	6.920e-02	1.052e+03	-0.878	0.380399
tense_contr:match_contr2	-2.516e-02	6.963e-02	1.053e+03	-0.361	0.717960
sync_contr:tense_contr:match_contr1	1.812e-01	1.384e-01	1.052e+03	1.309	0.190796
sync_contr:tense_contr:match_contr2	1.191e-01	1.393e-01	1.053e+03	0.855	0.392668

Conclusions

- The lack of a mismatch penalty is robust across materials and paradigms
- So is the lack of an effect of syncretism in RNR constructions which is however very robust for tense violations
- These data speak against
 - Syntactic identity constraints
 - Phonological identity constraints
 - Repair

Thanks for listening

Thanks to Brian Dillon for the SGJ scripts