

Electrophysiological evidence for the interaction of prosody and thematic fit during sentence comprehension

Supplementary Material

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Below is a figure showing all 12 electrode sites used in our analyses of the CPS component at the prosodic break in sentences with congruent prosody (Pr+TF+ vs. Pr-TF+; Pr+TF- vs. Pr-TF-).

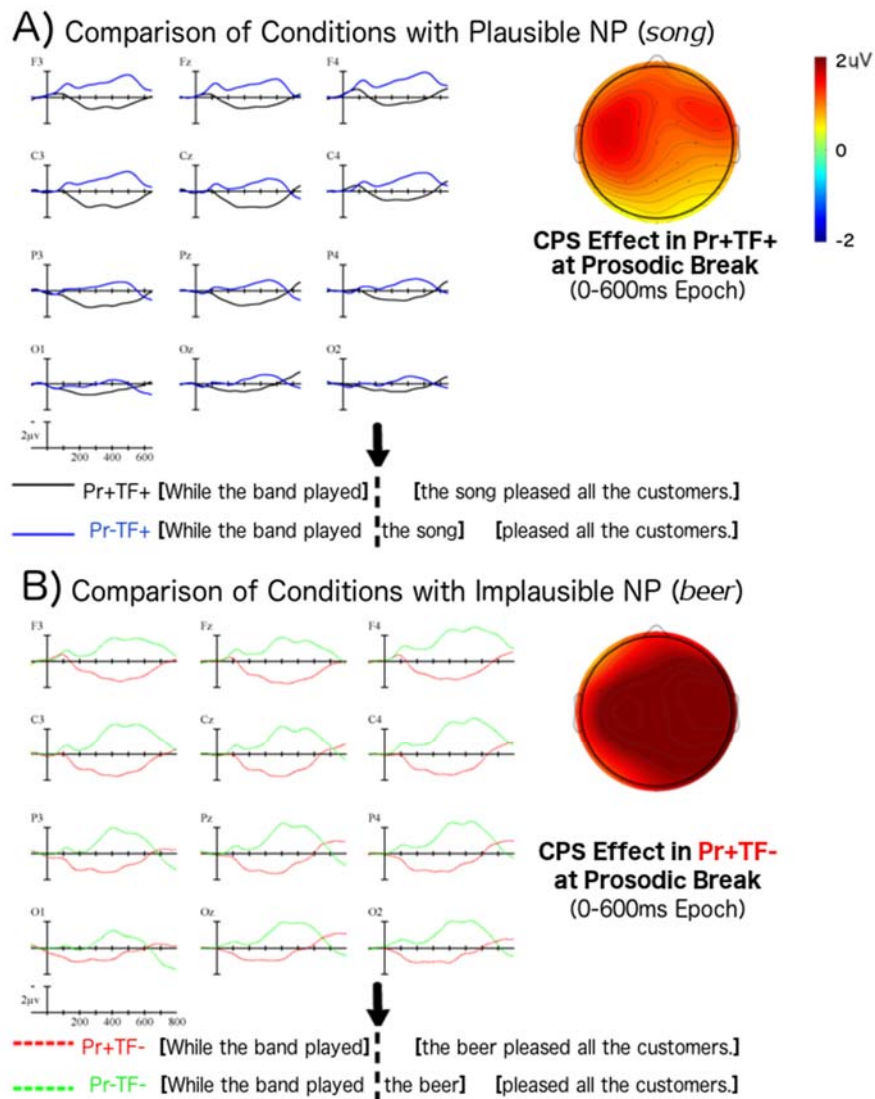


Figure S1. CPS effects at the Prosodic Break in Sentences with Congruent Prosody. Grand Average ERPs across 12 electrode sites used in the analysis at subordinate verb (*played*) offset corresponding to prosodic break in sentences with congruent prosody (Pr+TF+ and Pr+TF-). A) CPS at prosodic break in Pr+TF+, compared to Pr-TF+ sentences without a prosodic break at this point and B) CPS at prosodic break in Pr+TF-, compared to Pr-TF- sentences without a prosodic break at this point. The voltage maps show topographical distribution of CPS effects across the scalp based on the difference waveforms (congruent – incongruent prosody) ([Pr+TF+] – [Pr-TF+] in

A; [Pr+TF-] – [Pr+TF-] in B) in the 0-600ms epoch. In both comparisons the prosodic break elicits a significant CPS effect. Waveforms were low pass filtered at 5 Hz for presentation purposes only.

Additionally, below is a figure showing all 12 electrode sites used in our analyses at the temporarily ambiguous NP (*song/beer*) in all four experimental sentences.

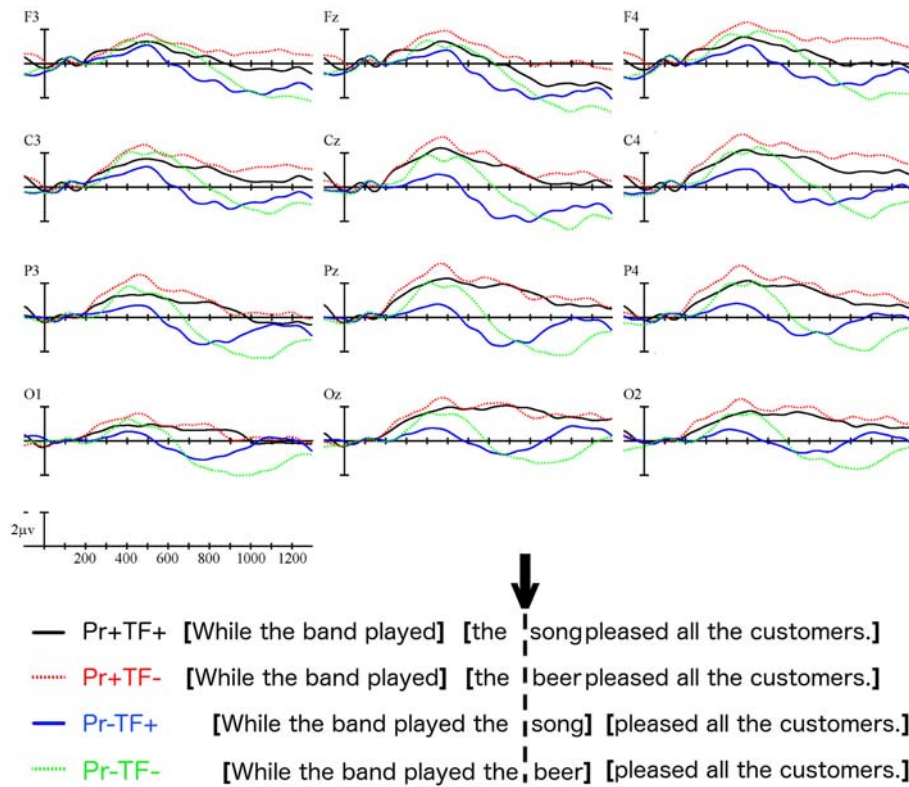


Figure S2. Grand average ERPs at the temporarily ambiguous NP (*song/beer*) across 12 electrode sites used in analysis. Waveforms were low pass filtered at 5 Hz for presentation purposes only.

Table S1. Experimental Sentences

No.	Set No.	Condition	Sentence
1	1	Pr+TF+	[While the band played] [the song pleased all the customers.]
2	1	Pr+TF-	[While the band played] [the beer pleased all the customers.]
3	1	Pr-TF+	[While the band played the song] [pleased all the customers.]
4	1	Pr-TF-	[While the band played the beer] [pleased all the customers.]
5	2	Pr+TF+	[As the men drank] [the beer pleased everybody very much.]
6	2	Pr+TF-	[As the men drank] [the song pleased everybody very much.]
7	2	Pr-TF+	[As the men drank the beer] [pleased everybody very much.]
8	2	Pr-TF-	[As the men drank the song] [pleased everybody very much.]
9	3	Pr+TF+	[As the window-cleaner called] [the housewife started to shake alarmingly.]
10	3	Pr+TF-	[As the window-cleaner called] [the ladder started to shake alarmingly.]
11	3	Pr-TF+	[As the window-cleaner called the housewife] [started to shake alarmingly.]
12	3	Pr-TF-	[As the window-cleaner called the ladder] [started to shake alarmingly.]
13	4	Pr+TF+	[While the child climbed] [the ladder fell to the ground.]
14	4	Pr+TF-	[While the child climbed] [the housewife fell to the ground.]
15	4	Pr-TF+	[While the child climbed the ladder] [fell to the ground.]
16	4	Pr-TF-	[While the child climbed the housewife] [fell to the ground.]
17	5	Pr+TF+	[While the neighbor visited] [the boy passed by the house.]
18	5	Pr+TF-	[While the neighbor visited] [the car passed by the house.]
19	5	Pr-TF+	[While the neighbor visited the boy] [passed by the house.]
20	5	Pr-TF-	[While the neighbor visited the car] [passed by the house.]
21	6	Pr+TF+	[As the driver parked] [the car made a loud noise.]
22	6	Pr+TF-	[As the driver parked] [the boy made a loud noise.]
23	6	Pr-TF+	[As the driver parked the car] [made a loud noise.]
24	6	Pr-TF-	[As the driver parked the boy] [made a loud noise.]
25	7	Pr+TF+	[While the woman drank] [the coffee looked very nice indeed.]
26	7	Pr+TF-	[While the woman drank] [the flowers looked very nice indeed.]
27	7	Pr-TF+	[While the woman drank the coffee] [looked very nice indeed.]
28	7	Pr-TF-	[While the woman drank the flowers] [looked very nice indeed.]
29	8	Pr+TF+	[As the girl painted] [the flowers smelled very fresh indeed.]
30	8	Pr+TF-	[As the girl painted] [the coffee smelled very fresh indeed.]
31	8	Pr-TF+	[As the girl painted the flowers] [smelled very fresh indeed.]
32	8	Pr-TF-	[As the girl painted the coffee] [smelled very fresh indeed.]
33	9	Pr+TF+	[As the woman called] [the puppy fell to the ground.]
34	9	Pr+TF-	[As the woman called] [the ice-cream fell to the ground.]

35	9	Pr-TF+	[As the woman called the puppy] [fell to the ground.]
36	9	Pr-TF-	[As the woman called the ice-cream] [fell to the ground.]
37	10	Pr+TF+	[While the child ate] [the ice-cream dropped to the floor.]
38	10	Pr+TF-	[While the child ate] [the puppy dropped to the floor.]
39	10	Pr-TF+	[While the child ate the ice-cream] [dropped to the floor.]
40	10	Pr-TF-	[While the child ate the puppy] [dropped to the floor.]
No.	Set No.	Condition	Sentence
41	11	Pr+TF+	[While the cleaner polished] [the truck was stolen by someone.]
42	11	Pr+TF-	[While the cleaner polished] [the cake was stolen by someone.]
43	11	Pr-TF+	[While the cleaner polished the truck] [was stolen by someone.]
44	11	Pr-TF-	[While the cleaner polished the cake] [was stolen by someone.]
45	12	Pr+TF+	[As the mother baked] [the cake disappeared mysteriously from sight.]
46	12	Pr+TF-	[As the mother baked] [the truck disappeared mysteriously from sight.]
47	12	Pr-TF+	[As the mother baked the cake] [disappeared mysteriously from sight.]
48	12	Pr-TF-	[As the mother baked the truck] [disappeared mysteriously from sight.]
49	13	Pr+TF+	[As the woman ate] [the fish shone in the sun.]
50	13	Pr+TF-	[As the woman ate] [the tree shone in the sun.]
51	13	Pr-TF+	[As the woman ate the fish] [shone in the sun.]
52	13	Pr-TF-	[As the woman ate the tree] [shone in the sun.]
53	14	Pr+TF+	[While the boy climbed] [the tree looked very beautiful indeed.]
54	14	Pr+TF-	[While the boy climbed] [the fish looked very beautiful indeed.]
55	14	Pr-TF+	[While the boy climbed the tree] [looked very beautiful indeed.]
56	14	Pr-TF-	[While the boy climbed the fish] [looked very beautiful indeed.]
57	15	Pr+TF+	[While the boy walked] [the dog got hot and smelly.]
58	15	Pr+TF-	[While the boy walked] [the milk got hot and smelly.]
59	15	Pr-TF+	[While the boy walked the dog] [got hot and smelly.]
60	15	Pr-TF-	[While the boy walked the milk] [got hot and smelly.]
61	16	Pr+TF+	[As the girl drank] [the milk disappeared from the kitchen.]
62	16	Pr+TF-	[As the girl drank] [the dog disappeared from the kitchen.]
63	16	Pr-TF+	[As the girl drank the milk] [disappeared from the kitchen.]
64	16	Pr-TF-	[As the girl drank the dog] [disappeared from the kitchen.]
65	17	Pr+TF+	[As the woman rode] [the horse raced under the bridge.]
66	17	Pr+TF-	[As the woman rode] [the boat raced under the bridge.]
67	17	Pr-TF+	[As the woman rode the horse] [raced under the bridge.]
68	17	Pr-TF-	[As the woman rode the boat] [raced under the bridge.]
69	18	Pr+TF+	[While the captain sailed] [the boat passed by very quickly.]
70	18	Pr+TF-	[While the captain sailed] [the horse passed by very quickly.]
71	18	Pr-TF+	[While the captain sailed the boat] [passed by very quickly.]
72	18	Pr-TF-	[While the captain sailed the horse] [passed by very quickly.]
73	19	Pr+TF+	[As the pilot flew] [the plane sounded far too loud.]
74	19	Pr+TF-	[As the pilot flew] [the song sounded far too loud.]
75	19	Pr-TF+	[As the pilot flew the plane] [sounded far too loud.]
76	19	Pr-TF-	[As the pilot flew the song] [sounded far too loud.]

77	20	Pr+TF+	[As the choir sang] [the song could be heard by everyone.]
78	20	Pr+TF-	[As the choir sang] [the plane could be heard by everyone.]
79	20	Pr-TF+	[As the choir sang the song] [could be heard by everyone.]
80	20	Pr-TF-	[As the choir sang the plane] [could be heard by everyone.]

No.	Set No.	Condition	Sentence
81	21	Pr+TF+	[While Henry wrote] [the novel amused all the reporters.]
82	21	Pr+TF-	[While Henry wrote] [the dancer amused all the reporters.]
83	21	Pr-TF+	[While Henry wrote the novel] [amused all the reporters.]
84	21	Pr-TF-	[While Henry wrote the dancer] [amused all the reporters.]
85	22	Pr+TF+	[As the monk chanted] [the prayer impressed a foreign visitor.]
86	22	Pr+TF-	[As the monk chanted] [the building impressed a foreign visitor.]
87	22	Pr-TF+	[As the monk chanted the prayer] [impressed a foreign visitor.]
88	22	Pr-TF-	[As the monk chanted the building] [impressed a foreign visitor.]
89	23	Pr+TF+	[While the supporters cheered] [the team bothered the musicians.]
90	23	Pr+TF-	[While the supporters cheered] [the wind bothered the musicians.]
91	23	Pr-TF+	[While the supporters cheered the team] [bothered the musicians.]
92	23	Pr-TF-	[While the supporters cheered the wind] [bothered the musicians.]
93	24	Pr+TF+	[As the professor lectured] [the students became very restless outside.]
94	24	Pr+TF-	[As the professor lectured] [the seagulls became very restless outside.]
95	24	Pr-TF+	[As the professor lectured the students] [became very restless outside.]
96	24	Pr-TF-	[As the professor lectured the seagulls] [became very restless outside.]
97	25	Pr+TF+	[As the sergeant marched] [the squadron spotted a pile of rocks.]
98	25	Pr+TF-	[As the sergeant marched] [the raccoons spotted a pile of rocks.]
99	25	Pr-TF+	[As the sergeant marched the squadron] [spotted a pile of rocks.]
100	25	Pr-TF-	[As the sergeant marched the raccoons] [spotted a pile of rocks.]
101	26	Pr+TF+	[As the minister preached] [the sermon excited the tourists.]
102	26	Pr+TF-	[As the minister preached] [the sunrise excited the tourists.]
103	26	Pr-TF+	[As the minister preached the sermon] [excited the tourists.]
104	26	Pr-TF-	[As the minister preached the sunrise] [excited the tourists.]
105	27	Pr+TF+	[As the writer typed] [the essay lay on the ground.]
106	27	Pr+TF-	[As the writer typed] [the bottle lay on the ground.]
107	27	Pr-TF+	[As the writer typed the essay] [lay on the ground.]
108	27	Pr-TF-	[As the writer typed the bottle] [lay on the ground.]
109	28	Pr+TF+	[As the group sang] [the hymn delighted the committee.]
110	28	Pr+TF-	[As the group sang] [the tea delighted the committee.]
111	28	Pr-TF+	[As the group sang the hymn] [delighted the committee.]
112	28	Pr-TF-	[As the group sang the tea] [delighted the committee.]
113	29	Pr+TF+	[While James walked] [the dog stopped next to the courthouse.]
114	29	Pr+TF-	[While James walked] [the truck stopped next to the courthouse.]
115	29	Pr-TF+	[While James walked the dog] [stopped next to the courthouse.]
116	29	Pr-TF-	[While James walked the truck] [stopped next to the courthouse.]

117	30	Pr+TF+	[As the picketers chanted] [the threats annoyed the neighbors.]
118	30	Pr+TF-	[As the picketers chanted] [the rain annoyed the neighbors.]
119	30	Pr-TF+	[As the picketers chanted the threats] [annoyed the neighbors.]
120	30	Pr-TF-	[As the picketers chanted the rain] [annoyed the neighbors.]

No.	Set No.	Condition	Sentence
121	31	Pr+TF+	[While the assistant chopped] [the steak chilled in the fridge.]
122	31	Pr+TF-	[While the assistant chopped] [the milk chilled in the fridge.]
123	31	Pr-TF+	[While the assistant chopped the steak] [chilled in the fridge.]
124	31	Pr-TF-	[While the assistant chopped the milk] [chilled in the fridge.]
125	32	Pr+TF+	[While the volunteer knitted] [the blanket was donated to the orphanage.]
126	32	Pr+TF-	[While the volunteer knitted] [the toaster was donated to the orphanage.]
127	32	Pr-TF+	[While the volunteer knitted the blanket] [was donated to the orphanage.]
128	32	Pr-TF-	[While the volunteer knitted the toaster] [was donated to the orphanage.]
129	33	Pr+TF+	[While Mary practiced] [the ballad irritated the old woman.]
130	33	Pr+TF-	[While Mary practiced] [the sofa irritated the old woman.]
131	33	Pr-TF+	[While Mary practiced the ballad] [irritated the old woman.]
132	33	Pr-TF-	[While Mary practiced the sofa] [irritated the old woman.]
133	34	Pr+TF+	[While the sitter cooked] [the meatballs were arranged neatly on a platter.]
134	34	Pr+TF-	[While the sitter cooked] [the cocktails were arranged neatly on a platter.]
135	34	Pr-TF+	[While the sitter cooked the meatballs] [were arranged neatly on a platter.]
136	34	Pr-TF-	[While the sitter cooked the cocktails] [were arranged neatly on a platter.]
137	35	Pr+TF+	[As the nanny cleaned] [the cat knocked over the sign.]
138	35	Pr+TF-	[As the nanny cleaned] [the breeze knocked over the sign.]
139	35	Pr-TF+	[As the nanny cleaned the cat] [knocked over the sign.]
140	35	Pr-TF-	[As the nanny cleaned the breeze] [knocked over the sign.]
141	36	Pr+TF+	[While the waitress practiced] [the piano was delivered to the apartment.]
142	36	Pr+TF-	[While the waitress practiced] [the envelope was delivered to the apartment.]
143	36	Pr-TF+	[While the waitress practiced the piano] [was delivered to the apartment.]
144	36	Pr-TF-	[While the waitress practiced the envelope] [was delivered to the apartment.]
145	37	Pr+TF+	[As Katie dusted] [the table stood in the corner.]
146	37	Pr+TF-	[As Katie dusted] [the toddler stood in the corner.]
147	37	Pr-TF+	[As Katie dusted the table] [stood in the corner.]
148	37	Pr-TF-	[As Katie dusted the toddler] [stood in the corner.]
149	38	Pr+TF+	[As the teacher lectured] [the boy entered the classroom.]
150	38	Pr+TF-	[As the teacher lectured] [the bee entered the classroom.]
151	38	Pr-TF+	[As the teacher lectured the boy] [entered the classroom.]
152	38	Pr-TF-	[As the teacher lectured the bee] [entered the classroom.]
153	39	Pr+TF+	[As the actors performed] [the play entertained the critics.]
154	39	Pr+TF-	[As the actors performed] [the food entertained the critics.]
155	39	Pr-TF+	[As the actors performed the play] [entertained the critics.]
156	39	Pr-TF-	[As the actors performed the food] [entertained the critics.]

157	40	Pr+TF+	[As the captain steered] [the ship repelled a surprise attack.]
158	40	Pr+TF-	[As the captain steered] [the town repelled a surprise attack.]
159	40	Pr-TF+	[As the captain steered the ship] [repelled a surprise attack.]
160	40	Pr-TF-	[As the captain steered the town] [repelled a surprise attack.]

No.	Set No.	Condition	Sentence
161	41	Pr+TF+	[While Julie dug] [the hole collapsed unexpectedly.]
162	41	Pr+TF-	[While Julie dug] [the tent collapsed unexpectedly.]
163	41	Pr-TF+	[While Julie dug the hole] [collapsed unexpectedly.]
164	41	Pr-TF-	[While Julie dug the tent] [collapsed unexpectedly.]
165	42	Pr+TF+	[While Adam raced] [a motorbike was sold in a nearby store.]
166	42	Pr+TF-	[While Adam raced] [a computer was sold in a nearby store.]
167	42	Pr-TF+	[While Adam raced a motorbike] [was sold in a nearby store.]
168	42	Pr-TF-	[While Adam raced a computer] [was sold in a nearby store.]
169	43	Pr+TF+	[While the businessman read] [the book engaged the young teenagers.]
170	43	Pr+TF-	[While the businessman read] [the chef engaged the young teenagers.]
171	43	Pr-TF+	[While the businessman read the book] [engaged the young teenagers.]
172	43	Pr-TF-	[While the businessman read the chef] [engaged the young teenagers.]
173	44	Pr+TF+	[As Susan wrote] [the letter arrived from Paris.]
174	44	Pr+TF-	[As Susan wrote] [the airplane arrived from Paris.]
175	44	Pr-TF+	[As Susan wrote the letter] [arrived from Paris.]
176	44	Pr-TF-	[As Susan wrote the airplane] [arrived from Paris.]
177	45	Pr+TF+	[While the lawyer wrote] [the contract remained in the safety deposit box.]
178	45	Pr+TF-	[While the lawyer wrote] [the heirloom remained in the safety deposit box.]
179	45	Pr-TF+	[While the lawyer wrote the contract] [remained in the safety deposit box.]
180	45	Pr-TF-	[While the lawyer wrote the heirloom] [remained in the safety deposit box.]
181	46	Pr+TF+	[While the director smoked] [the cigar was given away as a present.]
182	46	Pr+TF-	[While the director smoked] [the statue was given away as a present.]
183	46	Pr-TF+	[While the director smoked the cigar] [was given away as a present.]
184	46	Pr-TF-	[While the director smoked the statue] [was given away as a present.]
185	47	Pr+TF+	[As the tailor sewed] [the dress disappointed the picky judges.]
186	47	Pr+TF-	[As the tailor sewed] [the wine disappointed the picky judges.]
187	47	Pr-TF+	[As the tailor sewed the dress] [disappointed the picky judges.]
188	47	Pr-TF-	[As the tailor sewed the wine] [disappointed the picky judges.]
189	48	Pr+TF+	[While Tom cooked] [the hamburger sat on the table.]
190	48	Pr+TF-	[While Tom cooked] [the newspaper sat on the table.]
191	48	Pr-TF+	[While Tom cooked the hamburger] [sat on the table.]
192	48	Pr-TF-	[While Tom cooked the newspaper] [sat on the table.]
193	49	Pr+TF+	[As Rick drove] [the scooter warmed up in the garage.]
194	49	Pr+TF-	[As Rick drove] [the heater warmed up in the garage.]
195	49	Pr-TF+	[As Rick drove the scooter] [warmed up in the garage.]
196	49	Pr-TF-	[As Rick drove the heater] [warmed up in the garage.]

197	50	Pr+TF+	[As Jerry played] [the cello gathered dust in the attic.]
198	50	Pr+TF-	[As Jerry played] [the painting gathered dust in the attic.]
199	50	Pr-TF+	[As Jerry played the cello] [gathered dust in the attic.]
200	50	Pr-TF-	[As Jerry played the painting] [gathered dust in the attic.]

No.	Set No.	Condition	Sentence
201	51	Pr+TF+	[While the sailor smoked] [the cigarettes were sent to the factory.]
202	51	Pr+TF-	[While the sailor smoked] [the microwaves were sent to the factory.]
203	51	Pr-TF+	[While the sailor smoked the cigarettes] [were sent to the factory.]
204	51	Pr-TF-	[While the sailor smoked the microwaves] [were sent to the factory.]
205	52	Pr+TF+	[While Brian hunted] [the bison was prepared for dinner.]
206	52	Pr+TF-	[While Brian hunted] [the salad was prepared for dinner.]
207	52	Pr-TF+	[While Brian hunted the bison] [was prepared for dinner.]
208	52	Pr-TF-	[While Brian hunted the salad] [was prepared for dinner.]
209	53	Pr+TF+	[While the jeweler polished] [the ring glistened under the sun.]
210	53	Pr+TF-	[While the jeweler polished] [the lake glistened under the sun.]
211	53	Pr-TF+	[While the jeweler polished the ring] [glistened under the sun.]
212	53	Pr-TF-	[While the jeweler polished the lake] [glistened under the sun.]
213	54	Pr+TF+	[As Mark vacuumed] [the rug spun in the dryer.]
214	54	Pr+TF-	[As Mark vacuumed] [the shirt spun in the dryer.]
215	54	Pr-TF+	[As Mark vacuumed the rug] [spun in the dryer.]
216	54	Pr-TF-	[As Mark vacuumed the shirt] [spun in the dryer.]
217	55	Pr+TF+	[As the librarian lectured] [the children rested on the lawn.]
218	55	Pr+TF-	[As the librarian lectured] [the ducklings rested on the lawn.]
219	55	Pr-TF+	[As the librarian lectured the children] [rested on the lawn.]
220	55	Pr-TF-	[As the librarian lectured the ducklings] [rested on the lawn.]
221	56	Pr+TF+	[While Kendra parked] [the bus rusted in the junkyard.]
222	56	Pr+TF-	[While Kendra parked] [the nail rusted in the junkyard.]
223	56	Pr-TF+	[While Kendra parked the bus] [rusted in the junkyard.]
224	56	Pr-TF-	[While Kendra parked the nail] [rusted in the junkyard.]
225	57	Pr+TF+	[While the athlete ran] [the race produced an enthusiastic response.]
226	57	Pr+TF-	[While the athlete ran] [the girl produced an enthusiastic response.]
227	57	Pr-TF+	[While the athlete ran the race] [produced an enthusiastic response.]
228	57	Pr-TF-	[While the athlete ran the girl] [produced an enthusiastic response.]
229	58	Pr+TF+	[While the designer knitted] [the hat fell off the table.]
230	58	Pr+TF-	[While the designer knitted] [the lime fell off the table.]
231	58	Pr-TF+	[While the designer knitted the hat] [fell off the table.]
232	58	Pr-TF-	[While the designer knitted the lime] [fell off the table.]
233	59	Pr+TF+	[While Scott baked] [the pizza caught on fire.]
234	59	Pr+TF-	[While Scott baked] [the mitten caught on fire.]
235	59	Pr-TF+	[While Scott baked the pizza] [caught on fire.]
236	59	Pr-TF-	[While Scott baked the mitten] [caught on fire.]

237	60	Pr+TF+	[While the scientist read] [the report arrived at the house.]
238	60	Pr+TF-	[While the scientist read] [the mailman arrived at the house.]
239	60	Pr-TF+	[While the scientist read the report] [arrived at the house.]
240	60	Pr-TF-	[While the scientist read the mailman] [arrived at the house.]

For examples of audio sentence stimuli please select this link:

<https://figshare.com/s/a289a138833f8ea0dff0>