Doing it all again, but `tidy`

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The package `dplyr` is part of a larger "universe" of *R* packages called `tidyverse`. This collection of packages is specifically focused on data science and offers some shortcuts that are useful to learn. The packages that make up the `tidyverse` are `dplyr`, `ggplot2`, `purr`, `tibble`, `tidyr`, `stingr`, `readr`, and `forcats`, among others. Throughout this guide I try to use the most basic *R* syntax for accomplishing a task. This way you learn how *R* works. I will also show how to complete the same task using packages from the `tidyverse`. Using the `tidyverse` methods is usually optional — though once you get the hang of it, you might always use the `tidyverse` methods.

```
# Install the tidyverse package
install.packages("tidyverse")
```

```
# Load the tidyverse package
library(tidyverse)
```

```
# List the packages loaded by the tidyverse package
tidyverse_packages()
```

```
 [1] "broom"         "cli"           "crayon"        "dbplyr"
 [5] "dplyr"         "dtplyr"        "forcats"       "googledrive"
 [9] "googlesheets4" "ggplot2"       "haven"         "hms"
[13] "httr"          "jsonlite"      "lubridate"     "magrittr"
[17] "modelr"        "pillar"        "purrr"         "readr"
[21] "readxl"        "reprex"        "rlang"         "rstudioapi"
[25] "rvest"         "stringr"       "tibble"        "tidyr"
[29] "xml2"          "tidyverse"
```

Before we get started with the `tidyverse`, there are two important new things to learn about. The first is the pipe operator `%>%` and the second is the the alternative to a *data frame* called a *tibble*.

The Pipe %>%

The pipe operator `%>%`[1] is introduced by the `magrittr` package[2] and it is extremely useful. The pipe operator passes the output of a function to the first argument of the next function, which mean you can chain several steps together.

For example, lets find the mean year of birth in our data.[3] We already know that when the pre-vowel contexts are removed, the mean year of birth is 1969.

```
# Find mean YOB using mean() function
mean(td$YOB)
```

```
[1] 1969.447
```

```
# Find the mean YOB by piping the td data to the mean() function
td$YOB %>%
    mean()
```

```
[1] 1969.447
```

The functionality of `%>%` might seem trivial at this point; however, when you need to perform multiple tasks sequentially, it saves a lot of time and space when writing your code.

Tibbles

A *tibble* is an updated version of a *data frame*. *Tibbles* keep the features that have stood the test of time, and drop the features that used to be convenient but are now frustrating (i.e. converting character vectors to factors). For our purposes, the difference between the two is negligible, but you should be aware that *tibbles* look a bit different from *data frames*.

```
as.data.frame(td)
```

[1] Not to be confused with the operator `|`, which means "or" and whose symbol is also called "pipe".
[2] Loading `dplyr` will also let you use it.
[3] If you don't have the `td` dataset loaded in *R*, go back to the Interim Summary and run the code.

	Dep.Var	Stress	Category	Morph.Type	Before	After	Speaker	YOB	Sex	Ec
51	Realized	Stressed	Lexical	Mono	Stop	Consonant	BOUF65	1965	F	I
52	Deletion	Stressed	Lexical	Mono	Stop	Consonant	CHIF55	1955	F	I
53	Deletion	Stressed	Lexical	Mono	Stop	Consonant	CHIF55	1955	F	I
54	Deletion	Stressed	Lexical	Mono	Stop	Consonant	CLAF52	1952	F	I
55	Realized	Stressed	Lexical	Mono	Stop	Consonant	DONM53	1953	M	I
56	Deletion	Stressed	Lexical	Mono	Stop	Consonant	DONM58	1958	M	Not I
57	Deletion	Stressed	Lexical	Mono	Stop	Consonant	DOUF46	1946	F	I
59	Deletion	Stressed	Lexical	Mono	Stop	Consonant	GARM42	1942	M	Not I
60	Deletion	Stressed	Lexical	Mono	Stop	Consonant	GREM45	1945	M	Not I
61	Deletion	Stressed	Lexical	Mono	Stop	Consonant	HOLF49	1949	F	I
62	Deletion	Stressed	Lexical	Mono	Stop	Consonant	HOLM52	1952	M	Not I
63	Deletion	Stressed	Lexical	Mono	Stop	Consonant	INGM84	1984	M	I
64	Deletion	Stressed	Lexical	Mono	Stop	Consonant	INGM87	1987	M	I
65	Deletion	Stressed	Lexical	Mono	Stop	Consonant	KAYF29	1929	F	Not I
66	Deletion	Stressed	Lexical	Mono	Stop	Consonant	KAYM29	1929	M	Not I
67	Realized	Stressed	Lexical	Mono	Stop	Consonant	LATF53	1953	F	I
68	Realized	Stressed	Lexical	Mono	Stop	Consonant	LEOF66	1966	F	I
69	Deletion	Stressed	Lexical	Mono	Stop	Consonant	MOFM55	1955	M	I
70	Deletion	Stressed	Lexical	Mono	Stop	Consonant	NATF84	1984	F	I
71	Deletion	Stressed	Lexical	Mono	Stop	Consonant	NEIF49	1949	F	I
72	Realized	Stressed	Lexical	Mono	Stop	Consonant	PEIF57	1957	F	I
73	Deletion	Stressed	Lexical	Mono	Stop	Consonant	ROBM64	1964	M	I
74	Deletion	Stressed	Lexical	Mono	Stop	Consonant	RUDF73	1973	F	I
75	Deletion	Stressed	Lexical	Mono	Stop	Consonant	SAMF61	1961	F	I
76	Deletion	Stressed	Lexical	Mono	Stop	Consonant	SMIF58	1958	F	Not I
77	Deletion	Stressed	Lexical	Mono	Stop	Consonant	SMIM61	1961	M	Not I
78	Deletion	Stressed	Lexical	Mono	Stop	Consonant	STEF99	1999	F	
79	Deletion	Stressed	Lexical	Mono	Stop	Consonant	STEM42	1942	M	Not I
81	Realized	Unstressed	Lexical	Past	Liquid	Vowel	GARF37	1937	F	Not I
82	Deletion	Unstressed	Lexical	Past	Liquid	Vowel	MARM92	1992	M	
83	Realized	Unstressed	Lexical	Past	Liquid	Vowel	PHAM91	1991	M	
84	Realized	Unstressed	Lexical	Past	Liquid	Vowel	ROLF91	1991	F	
87	Realized	Unstressed	Lexical	Mono	Nasal	Pause	GARF87	1987	F	I
88	Realized	Unstressed	Lexical	Mono	Nasal	Pause	HUNF22	1922	F	I
147	Realized	Stressed	Lexical	Mono	Nasal	Pause	GARF87	1987	F	I
148	Realized	Stressed	Lexical	Mono	Nasal	Pause	HUNF22	1922	F	I
149	Realized	Stressed	Lexical	Mono	Nasal	Pause	HUNF22	1922	F	I
150	Deletion	Unstressed	Lexical	Mono	S	Pause	INGM84	1984	M	I
153	Deletion	Unstressed	Lexical	Mono	Liquid	Pause	GARF87	1987	F	I
157	Deletion	Unstressed	Lexical	Mono	Liquid	Vowel	GARM85	1985	M	I
160	Deletion	Stressed	Function	Mono	Nasal	H	DONF15	1915	F	Not I
161	Realized	Stressed	Function	Mono	Nasal	Pause	ELLF61	1961	F	I

162	Realized	Stressed	Function	Mono		Nasal	Pause	EVAF92	1992	F		
163	Realized	Stressed	Function	Mono		Nasal	Pause	GARF37	1937	F	Not	
164	Realized	Stressed	Function	Mono		Nasal	Pause	HUNF22	1922	F		
165	Realized	Stressed	Function	Mono		Nasal	Consonant	MARM92	1992	M		
166	Deletion	Stressed	Function	Mono		Nasal	Pause	MARM92	1992	M		
167	Deletion	Stressed	Function	Mono		Nasal	Pause	MARM92	1992	M		
168	Realized	Stressed	Function	Mono		Nasal	Pause	PACM94	1994	M		
169	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	BOUF65	1965	F		
170	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	CHIF55	1955	F		
171	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	CHIF55	1955	F		
172	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	CLAF52	1952	F		
173	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	DONF15	1915	F	Not	
174	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	DONM53	1953	M		
175	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	DONM58	1958	M	Not	
176	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	DOUF46	1946	F		
177	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	ELLF29	1929	F	Not	
178	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	GARM42	1942	M	Not	
179	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	GREM45	1945	M	Not	
180	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	HOLF49	1949	F		
181	Deletion	Stressed	Lexical	Past	Other	Fricative	Pause	HOLM52	1952	M	Not	
182	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	INGM84	1984	M		
183	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	INGM87	1987	M		
184	Deletion	Stressed	Lexical	Past	Other	Fricative	Pause	KAYF29	1929	F	Not	
185	Deletion	Stressed	Lexical	Past	Other	Fricative	Pause	KAYM29	1929	M	Not	
186	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	LATF53	1953	F		
187	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	LEOF66	1966	F		
188	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	MOFM55	1955	M		
189	Deletion	Stressed	Lexical	Past	Other	Fricative	Pause	NATF84	1984	F		
190	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	NEIF49	1949	F		
191	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	PEIF57	1957	F		
192	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	ROBM64	1964	M		
193	Deletion	Stressed	Lexical	Past	Other	Fricative	Pause	RUDF73	1973	F		
194	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	SAMF61	1961	F		
195	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	SMIF58	1958	F	Not	
196	Deletion	Stressed	Lexical	Past	Other	Fricative	Pause	SMIM61	1961	M	Not	
197	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	STEF99	1999	F		
198	Deletion	Stressed	Lexical	Past	Other	Fricative	Pause	STEM42	1942	M	Not	
199	Realized	Stressed	Lexical	Past		Stop	Vowel	GARF87	1987	F		
200	Realized	Stressed	Lexical	Past		Stop	Vowel	GARM85	1985	M		
201	Realized	Stressed	Lexical	Past		Stop	H	INGM87	1987	M		
354	Realized	Stressed	Lexical	Mono		Nasal	Pause	GARF87	1987	F		
476	Deletion	Stressed	Lexical	Mono		Nasal	Vowel	MARM92	1992	M		
481	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	HOLF49	1949	F		

604	Realized	Stressed	Lexical	Mono	S	Pause	GARF87	1987	F	
605	Realized	Stressed	Lexical	Mono	S	Pause	HUNF22	1922	F	
606	Realized	Stressed	Lexical	Mono	S	Pause	MARM92	1992	M	
607	Deletion	Stressed	Lexical	Mono	S	Vowel	MARM92	1992	M	
610	Deletion	Unstressed	Function	Mono	Nasal	Vowel	GARF87	1987	F	
673	Realized	Stressed	Lexical	Mono	Liquid	Pause	ARSM91	1991	M	
674	Realized	Stressed	Lexical	Mono	Liquid	Pause	BEAM91	1991	M	
675	Realized	Stressed	Lexical	Mono	Liquid	Pause	BOUF65	1965	F	
676	Realized	Stressed	Lexical	Mono	Liquid	Pause	CARM91	1991	M	
677	Realized	Stressed	Lexical	Mono	Liquid	Pause	CHIF55	1955	F	
678	Realized	Stressed	Lexical	Mono	Liquid	Pause	CLAF52	1952	F	
679	Realized	Stressed	Lexical	Mono	Liquid	Pause	CONM89	1989	M	
680	Realized	Stressed	Lexical	Mono	Liquid	Pause	DELF91	1991	F	
681	Realized	Stressed	Lexical	Mono	Liquid	Pause	DONM53	1953	M	
682	Realized	Stressed	Lexical	Mono	Liquid	Pause	DONM58	1958	M	Not
683	Realized	Stressed	Lexical	Mono	Liquid	Pause	DOUF46	1946	F	
684	Realized	Stressed	Lexical	Mono	Liquid	Pause	ELLF29	1929	F	Not
685	Realized	Stressed	Lexical	Mono	Liquid	Pause	ELLF61	1961	F	
686	Realized	Stressed	Lexical	Mono	Liquid	Pause	EVAF92	1992	F	
687	Realized	Stressed	Lexical	Mono	Liquid	Pause	FRAM93	1993	M	
688	Realized	Stressed	Lexical	Mono	Liquid	Pause	GARF37	1937	F	Not
689	Realized	Stressed	Lexical	Mono	Liquid	Pause	GAVF93	1993	F	
690	Realized	Stressed	Lexical	Mono	Liquid	Pause	GAVM90	1990	M	Not
691	Realized	Stressed	Lexical	Mono	Liquid	Pause	GOUM91	1991	M	
692	Realized	Stressed	Lexical	Mono	Liquid	Pause	GREF22	1922	F	Not
693	Realized	Stressed	Lexical	Mono	Liquid	Pause	GREM45	1945	M	Not
694	Realized	Stressed	Lexical	Mono	Liquid	Pause	HAWM90	1990	M	Not
695	Realized	Stressed	Lexical	Mono	Liquid	Pause	HOLF49	1949	F	
696	Realized	Stressed	Lexical	Mono	Liquid	Pause	HOLM52	1952	M	Not
697	Realized	Stressed	Lexical	Mono	Liquid	Pause	INGM84	1984	M	
698	Realized	Stressed	Lexical	Mono	Liquid	Pause	INGM87	1987	M	
699	Realized	Stressed	Lexical	Mono	Liquid	Pause	JOCF91	1991	F	
700	Realized	Stressed	Lexical	Mono	Liquid	Pause	JOYF91	1991	F	
701	Realized	Stressed	Lexical	Mono	Liquid	Pause	KAYF29	1929	F	Not
702	Deletion	Stressed	Lexical	Mono	Liquid	Pause	KAYM29	1929	M	Not
703	Realized	Stressed	Lexical	Mono	Liquid	Pause	LATF53	1953	F	
704	Realized	Stressed	Lexical	Mono	Liquid	Pause	LEOF66	1966	F	
705	Realized	Stressed	Lexical	Mono	Liquid	Pause	MARM92	1992	M	
706	Realized	Stressed	Lexical	Mono	Liquid	Pause	MOFM55	1955	M	
707	Realized	Stressed	Lexical	Mono	Liquid	Pause	MORF91	1991	F	
708	Realized	Stressed	Lexical	Mono	Liquid	Pause	NATF84	1984	F	
709	Realized	Stressed	Lexical	Mono	Liquid	Pause	NEIF49	1949	F	
710	Realized	Stressed	Lexical	Mono	Liquid	Pause	PEIF57	1957	F	

711	Realized	Stressed	Lexical	Mono	Liquid	Pause	PHAM91	1991	M		
712	Realized	Stressed	Lexical	Mono	Liquid	Pause	ROBM64	1964	M		
713	Realized	Stressed	Lexical	Mono	Liquid	Pause	ROLF91	1991	F		
714	Realized	Stressed	Lexical	Mono	Liquid	Pause	RUDF73	1973	F		
715	Realized	Stressed	Lexical	Mono	Liquid	Pause	SAMF61	1961	F		
716	Deletion	Stressed	Lexical	Mono	Liquid	Pause	SILM90	1990	M	Not	
717	Realized	Stressed	Lexical	Mono	Liquid	Pause	SMIF58	1958	F	Not	
718	Deletion	Stressed	Lexical	Mono	Liquid	Pause	SMIM61	1961	M	Not	
719	Realized	Stressed	Lexical	Mono	Liquid	Pause	STEF99	1999	F		
720	Realized	Stressed	Lexical	Mono	Liquid	Pause	STEM42	1942	M	Not	
721	Realized	Stressed	Lexical	Mono	Liquid	Pause	TAMF91	1991	F		
722	Realized	Stressed	Lexical	Mono	Liquid	Pause	VICF91	1991	F		
723	Realized	Stressed	Lexical	Mono	Liquid	Pause	VIKF91	1991	F		
727	Realized	Stressed	Lexical	Mono	Other Fricative	Pause	BOUF65	1965	F		
737	Realized	Stressed	Lexical	Mono	Other Fricative	Pause	GARM42	1942	M	Not	
753	Deletion	Stressed	Lexical	Mono	Other Fricative	Pause	PEIF57	1957	F		
757	Realized	Stressed	Lexical	Mono	Other Fricative	Pause	SMIF58	1958	F	Not	
761	Realized	Stressed	Lexical	Mono	Other Fricative	Pause	STEF99	1999	F		
990	Realized	Stressed	Lexical	Past	Stop	Pause	HUNF22	1922	F		
991	Realized	Stressed	Lexical	Semi-Weak	Liquid	Vowel	DONF15	1915	F	Not	
1092	Realized	Stressed	Lexical	Past	Other Fricative	Pause	GARF87	1987	F		
1093	Realized	Stressed	Lexical	Past	Other Fricative	Pause	HUNF22	1922	F		
1095	Realized	Stressed	Function	Mono	Nasal	Vowel	GARF37	1937	F	Not	
1096	Deletion	Stressed	Function	Mono	Nasal	Vowel	MARM92	1992	M		
1097	Deletion	Stressed	Function	Mono	Nasal	Vowel	ROLF91	1991	F		
1098	Realized	Stressed	Lexical	Mono	Liquid	Vowel	DONF15	1915	F	Not	
1099	Realized	Stressed	Lexical	Mono	Liquid	Vowel	DONF15	1915	F	Not	
1145	Realized	Stressed	Lexical	Past	Nasal	Pause	GARF87	1987	F		
1146	Realized	Stressed	Lexical	Past	Nasal	Pause	HUNF22	1922	F		
1147	Realized	Stressed	Lexical	Past	Other Fricative	Pause	GARF87	1987	F		
1148	Realized	Stressed	Lexical	Past	Stop	H	ARSM91	1991	M		
1149	Realized	Stressed	Lexical	Past	Stop	H	BEAM91	1991	M		
1150	Realized	Stressed	Lexical	Past	Stop	H	BOUF65	1965	F		
1151	Realized	Stressed	Lexical	Past	Stop	H	CARM91	1991	M		
1152	Realized	Stressed	Lexical	Past	Stop	H	CHIF55	1955	F		
1153	Realized	Stressed	Lexical	Past	Stop	H	CLAF52	1952	F		
1154	Realized	Stressed	Lexical	Past	Stop	H	CONM89	1989	M		
1155	Realized	Stressed	Lexical	Past	Stop	H	DELF91	1991	F		
1156	Realized	Stressed	Lexical	Past	Stop	H	DONM53	1953	M		
1157	Realized	Stressed	Lexical	Past	Stop	H	DONM58	1958	M	Not	
1158	Realized	Stressed	Lexical	Past	Stop	H	DOUF46	1946	F		
1159	Realized	Stressed	Lexical	Past	Stop	H	ELLF29	1929	F	Not	
1160	Realized	Stressed	Lexical	Past	Stop	H	ELLF61	1961	F		

1161	Realized	Stressed	Lexical	Past	Stop	H	EVAF92	1992	F	
1162	Realized	Stressed	Lexical	Past	Stop	H	FRAM93	1993	M	
1163	Realized	Stressed	Lexical	Past	Stop	H	GARF37	1937	F	Not
1164	Realized	Stressed	Lexical	Past	Stop	H	GARM42	1942	M	Not
1165	Realized	Stressed	Lexical	Past	Stop	H	GAVF93	1993	F	
1166	Realized	Stressed	Lexical	Past	Stop	H	GAVM90	1990	M	Not
1167	Realized	Stressed	Lexical	Past	Stop	H	GOUM91	1991	M	
1168	Realized	Stressed	Lexical	Past	Stop	H	GREF22	1922	F	Not
1169	Realized	Stressed	Lexical	Past	Stop	H	GREM45	1945	M	Not
1170	Realized	Stressed	Lexical	Past	Stop	H	HAWM90	1990	M	Not
1171	Realized	Stressed	Lexical	Past	Stop	H	HOLF49	1949	F	
1172	Realized	Stressed	Lexical	Past	Stop	H	HOLM52	1952	M	Not
1173	Realized	Stressed	Lexical	Past	Stop	H	INGM84	1984	M	
1174	Realized	Stressed	Lexical	Past	Stop	H	INGM87	1987	M	
1175	Realized	Stressed	Lexical	Past	Stop	H	JOCF91	1991	F	
1176	Realized	Stressed	Lexical	Past	Stop	H	JOYF91	1991	F	
1177	Realized	Stressed	Lexical	Past	Stop	H	KAYF29	1929	F	Not
1179	Realized	Stressed	Lexical	Past	Stop	H	LATF53	1953	F	
1180	Realized	Stressed	Lexical	Past	Stop	H	LEOF66	1966	F	
1181	Realized	Stressed	Lexical	Past	Stop	H	MARM92	1992	M	
1182	Realized	Stressed	Lexical	Past	Stop	H	MOFM55	1955	M	
1183	Realized	Stressed	Lexical	Past	Stop	H	MORF91	1991	F	
1184	Realized	Stressed	Lexical	Past	Stop	H	NATF84	1984	F	
1185	Realized	Stressed	Lexical	Past	Stop	H	NEIF49	1949	F	
1186	Realized	Stressed	Lexical	Past	Stop	H	PEIF57	1957	F	
1187	Realized	Stressed	Lexical	Past	Stop	H	PHAM91	1991	M	
1188	Realized	Stressed	Lexical	Past	Stop	H	ROBM64	1964	M	
1189	Realized	Stressed	Lexical	Past	Stop	H	ROLF91	1991	F	
1190	Realized	Stressed	Lexical	Past	Stop	H	RUDF73	1973	F	
1191	Realized	Stressed	Lexical	Past	Stop	H	SAMF61	1961	F	
1192	Realized	Stressed	Lexical	Past	Stop	H	SILM90	1990	M	Not
1193	Realized	Stressed	Lexical	Past	Stop	H	SMIF58	1958	F	Not
1194	Realized	Stressed	Lexical	Past	Stop	H	SMIM61	1961	M	Not
1195	Realized	Stressed	Lexical	Past	Stop	H	STEF99	1999	F	
1196	Realized	Stressed	Lexical	Past	Stop	H	STEM42	1942	M	Not
1197	Realized	Stressed	Lexical	Past	Stop	H	TAMF91	1991	F	
1198	Realized	Stressed	Lexical	Past	Stop	H	VICF91	1991	F	
1199	Realized	Stressed	Lexical	Past	Stop	H	VIKF91	1991	F	
1200	Realized	Stressed	Lexical	Mono	S	Pause	HUNF22	1922	F	
1201	Realized	Stressed	Lexical	Mono	S	Pause	MARM92	1992	M	
1276	Realized	Stressed	Lexical	Mono	Nasal	Pause	LELM91	1991	M	
1300	Deletion	Stressed	Lexical	Past	Other Fricative	Pause	GAVM90	1990	M	Not
1301	Realized	Stressed	Lexical	Mono	S	Pause	ARSM91	1991	M	

1302	Realized	Stressed	Lexical	Mono	S	Pause	BEAM91	1991	M		
1303	Realized	Stressed	Lexical	Mono	S	Pause	CARM91	1991	M		
1304	Realized	Stressed	Lexical	Mono	S	Pause	DAVM90	1990	M		
1305	Realized	Stressed	Lexical	Mono	S	Pause	DELF91	1991	F		
1306	Realized	Stressed	Lexical	Mono	S	Pause	ELLF61	1961	F		
1307	Realized	Stressed	Lexical	Mono	S	Pause	FRAM93	1993	M		
1308	Realized	Stressed	Lexical	Mono	S	Pause	GARF87	1987	F		
1309	Realized	Stressed	Lexical	Mono	S	Pause	GAVF93	1993	F		
1310	Realized	Stressed	Lexical	Mono	S	Pause	GAVM90	1990	M	Not	
1311	Realized	Stressed	Lexical	Mono	S	Pause	GOUM91	1991	M		
1312	Deletion	Stressed	Lexical	Mono	S	Pause	HAWM90	1990	M	Not	
1313	Realized	Stressed	Lexical	Mono	S	Pause	HUNF22	1922	F		
1314	Deletion	Stressed	Lexical	Mono	S	Pause	INGM84	1984	M		
1315	Realized	Stressed	Lexical	Mono	S	Pause	JOCF91	1991	F		
1316	Realized	Stressed	Lexical	Mono	S	Pause	JOYF91	1991	F		
1318	Realized	Stressed	Lexical	Mono	S	Pause	MORF91	1991	F		
1319	Realized	Stressed	Lexical	Mono	S	Pause	PACM94	1994	M		
1320	Realized	Stressed	Lexical	Mono	S	Pause	PHAM91	1991	M		
1321	Realized	Stressed	Lexical	Mono	S	Pause	ROLF91	1991	F		
1322	Realized	Stressed	Lexical	Mono	S	Pause	SILM90	1990	M	Not	
1323	Realized	Stressed	Lexical	Mono	S	Pause	TAMF91	1991	F		
1324	Realized	Stressed	Lexical	Mono	S	Pause	VICF91	1991	F		
1325	Deletion	Stressed	Lexical	Mono	S	Pause	VIKF91	1991	F		
1468	Realized	Stressed	Lexical	Mono	Liquid	Pause	HUNF22	1922	F		
1469	Deletion	Unstressed	Lexical	Mono	Liquid	Pause	INGM84	1984	M		
1524	Realized	Unstressed	Lexical	Mono	Nasal	Pause	EVAF92	1992	F		
1525	Realized	Unstressed	Lexical	Mono	Nasal	Pause	GARF37	1937	F	Not	
1526	Deletion	Unstressed	Lexical	Mono	Nasal	Pause	GREF22	1922	F	Not	
1527	Realized	Unstressed	Lexical	Mono	Nasal	Pause	HUNF22	1922	F		
1529	Realized	Unstressed	Lexical	Mono	Nasal	Pause	PACM94	1994	M		
1534	Realized	Stressed	Lexical	Mono	S	Vowel	GARF37	1937	F	Not	
1535	Realized	Stressed	Lexical	Mono	S	Vowel	MARM92	1992	M		
1536	Realized	Stressed	Lexical	Mono	S	Vowel	PHAM91	1991	M		
1537	Deletion	Stressed	Lexical	Mono	S	Vowel	ROLF91	1991	F		
1611	Realized	Stressed	Lexical	Mono	Nasal	Pause	ELLF61	1961	F		
1612	Realized	Stressed	Lexical	Mono	Nasal	Pause	EVAF92	1992	F		
1613	Realized	Stressed	Lexical	Mono	Nasal	Pause	GARF37	1937	F	Not	
1614	Deletion	Stressed	Lexical	Mono	Nasal	Pause	GREF22	1922	F	Not	
1615	Realized	Stressed	Lexical	Mono	Nasal	Pause	HUNF22	1922	F		
1616	Realized	Stressed	Lexical	Mono	Nasal	Pause	MARM92	1992	M		
1617	Realized	Stressed	Lexical	Mono	Nasal	Pause	PACM94	1994	M		
1618	Realized	Unstressed	Lexical	Mono	Liquid	Pause	GAVM90	1990	M	Not	
1851	Realized	Stressed	Lexical	Past	S	Pause	INGM84	1984	M		

1858	Realized	Unstressed	Function	Mono	Nasal	Vowel	BOUF65	1965	F		
1859	Realized	Unstressed	Function	Mono	Nasal	Vowel	CHIF55	1955	F		
1860	Deletion	Unstressed	Function	Mono	Nasal	Vowel	CLAF52	1952	F		
1861	Deletion	Unstressed	Function	Mono	Nasal	Vowel	DONF15	1915	F	Not	
1862	Deletion	Unstressed	Function	Mono	Nasal	H	DONF15	1915	F	Not	
1863	Deletion	Unstressed	Function	Mono	Nasal	Vowel	DONM53	1953	M		
1864	Deletion	Unstressed	Function	Mono	Nasal	Vowel	DONM58	1958	M	Not	
1865	Deletion	Unstressed	Function	Mono	Nasal	Vowel	DOUF46	1946	F		
1866	Realized	Unstressed	Function	Mono	Nasal	Vowel	ELLF29	1929	F	Not	
1867	Deletion	Unstressed	Function	Mono	Nasal	Vowel	GREM45	1945	M	Not	
1868	Deletion	Unstressed	Function	Mono	Nasal	Vowel	HOLF49	1949	F		
1869	Realized	Unstressed	Function	Mono	Nasal	Vowel	HOLM52	1952	M	Not	
1870	Realized	Unstressed	Function	Mono	Nasal	Vowel	INGM84	1984	M		
1871	Deletion	Unstressed	Function	Mono	Nasal	Vowel	INGM87	1987	M		
1872	Deletion	Unstressed	Function	Mono	Nasal	Vowel	KAYF29	1929	F	Not	
1873	Deletion	Unstressed	Function	Mono	Nasal	Vowel	KAYM29	1929	M	Not	
1874	Deletion	Unstressed	Function	Mono	Nasal	Vowel	LATF53	1953	F		
1875	Realized	Unstressed	Function	Mono	Nasal	Vowel	LEOF66	1966	F		
1876	Deletion	Unstressed	Function	Mono	Nasal	H	LEOF66	1966	F		
1877	Deletion	Unstressed	Function	Mono	Nasal	Vowel	NATF84	1984	F		
1878	Realized	Unstressed	Function	Mono	Nasal	Vowel	NEIF49	1949	F		
1879	Deletion	Unstressed	Function	Mono	Nasal	Vowel	PEIF57	1957	F		
1880	Deletion	Unstressed	Function	Mono	Nasal	Vowel	RUDF73	1973	F		
1881	Deletion	Unstressed	Function	Mono	Nasal	Vowel	SAMF61	1961	F		
1882	Deletion	Unstressed	Function	Mono	Nasal	Vowel	SMIF58	1958	F	Not	
1883	Deletion	Unstressed	Function	Mono	Nasal	Vowel	SMIM61	1961	M	Not	
1884	Realized	Unstressed	Function	Mono	Nasal	Vowel	STEF99	1999	F		
1885	Deletion	Unstressed	Function	Mono	Nasal	Vowel	STEM42	1942	M	Not	
1919	Realized	Unstressed	Lexical	Mono	Liquid	Vowel	DONF15	1915	F	Not	
1920	Realized	Unstressed	Lexical	Mono	Nasal	Vowel	GARF16	1916	F	Not	
1921	Deletion	Unstressed	Lexical	Mono	Nasal	Vowel	GARF37	1937	F	Not	
1922	Deletion	Unstressed	Lexical	Mono	Nasal	Pause	MARM92	1992	M		
1923	Deletion	Unstressed	Lexical	Mono	Nasal	Pause	MARM92	1992	M		
1924	Deletion	Unstressed	Lexical	Mono	Nasal	Vowel	MARM92	1992	M		
1925	Deletion	Unstressed	Lexical	Mono	Nasal	Vowel	PHAM91	1991	M		
1926	Deletion	Unstressed	Lexical	Mono	Nasal	Vowel	ROLF91	1991	F		
1927	Realized	Unstressed	Lexical	Mono	Stop	Vowel	ARSM91	1991	M		
1928	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	BEAM91	1991	M		
1929	Realized	Unstressed	Lexical	Mono	Stop	Vowel	BOUF65	1965	F		
1930	Realized	Unstressed	Lexical	Mono	Stop	Vowel	CARM91	1991	M		
1931	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	CHIF55	1955	F		
1932	Realized	Unstressed	Lexical	Mono	Stop	Vowel	CHIF55	1955	F		
1933	Realized	Unstressed	Lexical	Mono	Stop	Vowel	CLAF52	1952	F		

1934	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	CLAM73	1973	M	Not
1935	Realized	Unstressed	Lexical	Mono	Stop	Vowel	CLAM73	1973	M	Not
1936	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	CONM89	1989	M	
1937	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	DAVM90	1990	M	
1938	Realized	Unstressed	Lexical	Mono	Stop	Vowel	DELF91	1991	F	
1939	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	DONF15	1915	F	Not
1940	Realized	Unstressed	Lexical	Mono	Stop	Vowel	DONM53	1953	M	
1941	Realized	Unstressed	Lexical	Mono	Stop	Vowel	DONM58	1958	M	Not
1942	Realized	Unstressed	Lexical	Mono	Stop	Vowel	DOUF46	1946	F	
1943	Realized	Unstressed	Lexical	Mono	Stop	Vowel	ELLF29	1929	F	Not
1944	Realized	Unstressed	Lexical	Mono	Stop	Vowel	ELLF61	1961	F	
1945	Realized	Unstressed	Lexical	Mono	Stop	Vowel	EVAF92	1992	F	
1946	Realized	Unstressed	Lexical	Mono	Stop	Vowel	FRAM93	1993	M	
1947	Realized	Unstressed	Lexical	Mono	Stop	Vowel	GARF37	1937	F	Not
1948	Realized	Unstressed	Lexical	Mono	Stop	Vowel	GARM42	1942	M	Not
1949	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	GAVF93	1993	F	
1950	Realized	Unstressed	Lexical	Mono	Stop	Vowel	GAVM90	1990	M	Not
1951	Realized	Unstressed	Lexical	Mono	Stop	Vowel	GOUM91	1991	M	
1952	Realized	Unstressed	Lexical	Mono	Stop	Vowel	GREF22	1922	F	Not
1953	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	GREM45	1945	M	Not
1954	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	HAWM90	1990	M	Not
1955	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	HOLM52	1952	M	Not
1956	Realized	Unstressed	Lexical	Mono	Stop	Vowel	INGM84	1984	M	
1957	Realized	Unstressed	Lexical	Mono	Stop	Vowel	INGM87	1987	M	
1958	Realized	Unstressed	Lexical	Mono	Stop	Vowel	JOCF91	1991	F	
1959	Realized	Unstressed	Lexical	Mono	Stop	Vowel	JOYF91	1991	F	
1960	Realized	Unstressed	Lexical	Mono	Stop	Vowel	KAYF29	1929	F	Not
1961	Realized	Unstressed	Lexical	Mono	Stop	Vowel	KAYM29	1929	M	Not
1962	Realized	Unstressed	Lexical	Mono	Stop	Vowel	LATF53	1953	F	
1963	Realized	Unstressed	Lexical	Mono	Stop	Vowel	LELM91	1991	M	
1964	Realized	Unstressed	Lexical	Mono	Stop	Vowel	LEOF66	1966	F	
1965	Realized	Unstressed	Lexical	Mono	Stop	Vowel	MARM92	1992	M	
1966	Realized	Unstressed	Lexical	Mono	Stop	Vowel	MOFM55	1955	M	
1967	Realized	Unstressed	Lexical	Mono	Stop	Vowel	MORF91	1991	F	
1968	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	NATF84	1984	F	
1969	Realized	Unstressed	Lexical	Mono	Stop	Vowel	NEIF49	1949	F	
1970	Realized	Unstressed	Lexical	Mono	Stop	Vowel	PEIF57	1957	F	
1971	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	PHAM91	1991	M	
1972	Realized	Unstressed	Lexical	Mono	Stop	Vowel	ROBM64	1964	M	
1973	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	ROLF91	1991	F	
1974	Realized	Unstressed	Lexical	Mono	Stop	Vowel	RUDF73	1973	F	
1975	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	SAMF61	1961	F	
1976	Realized	Unstressed	Lexical	Mono	Stop	Vowel	SILM90	1990	M	Not

1977	Realized	Unstressed	Lexical	Mono	Stop	Vowel	SMIF58	1958	F	Not	I
1978	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	SMIM61	1961	M	Not	I
1979	Realized	Unstressed	Lexical	Mono	Stop	Vowel	STEF99	1999	F		
1980	Realized	Unstressed	Lexical	Mono	Stop	Vowel	STEM42	1942	M	Not	I
1981	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	TAMF91	1991	F		
1982	Deletion	Unstressed	Lexical	Mono	Stop	Vowel	VICF91	1991	F		
1983	Realized	Unstressed	Lexical	Mono	Stop	Vowel	VIKF91	1991	F		
1984	Deletion	Stressed	Function	Mono	Nasal	H	DONF15	1915	F	Not	I
1985	Deletion	Stressed	Function	Mono	Nasal	Vowel	MARM92	1992	M		
1986	Deletion	Stressed	Function	Mono	Nasal	Pause	MARM92	1992	M		
1987	Deletion	Stressed	Function	Mono	Nasal	H	MARM92	1992	M		
1988	Deletion	Stressed	Function	Mono	Nasal	Vowel	MARM92	1992	M		
2141	Realized	Unstressed	Lexical	Mono	Liquid	Pause	INGM84	1984	M		I
2174	Realized	Unstressed	Lexical	Mono	Nasal	Pause	DONF15	1915	F	Not	I
2177	Realized	Stressed	Lexical	Mono	Stop	Consonant	ARSM91	1991	M		I
2178	Deletion	Stressed	Lexical	Mono	Stop	Consonant	BOUF65	1965	F		I
2179	Realized	Stressed	Lexical	Mono	Stop	Consonant	CARM91	1991	M		
2180	Realized	Stressed	Lexical	Mono	Stop	Consonant	CHIF55	1955	F		I
2181	Deletion	Stressed	Lexical	Mono	Stop	Consonant	CLAF52	1952	F		I
2182	Deletion	Stressed	Lexical	Mono	Stop	Consonant	CONM89	1989	M		I
2183	Realized	Stressed	Lexical	Mono	Stop	Consonant	DELF91	1991	F		
2184	Deletion	Stressed	Lexical	Mono	Stop	Consonant	DONM53	1953	M		I
2185	Realized	Stressed	Lexical	Mono	Stop	Consonant	DONM58	1958	M	Not	I
2186	Deletion	Stressed	Lexical	Mono	Stop	Consonant	DOUF46	1946	F		I
2187	Realized	Stressed	Lexical	Mono	Stop	Consonant	EVAF92	1992	F		
2188	Realized	Stressed	Lexical	Mono	Stop	Consonant	FRAM93	1993	M		
2189	Deletion	Stressed	Lexical	Mono	Stop	Consonant	GARF37	1937	F	Not	I
2190	Realized	Stressed	Lexical	Mono	Stop	Consonant	GAVF93	1993	F		
2191	Deletion	Stressed	Lexical	Mono	Stop	Consonant	GAVM90	1990	M	Not	I
2192	Realized	Stressed	Lexical	Mono	Stop	Consonant	GOUM91	1991	M		
2193	Deletion	Stressed	Lexical	Mono	Stop	Consonant	GREF22	1922	F	Not	I
2194	Realized	Stressed	Lexical	Mono	Stop	Consonant	GREM45	1945	M	Not	I
2195	Deletion	Stressed	Lexical	Mono	Stop	Consonant	HAWM90	1990	M	Not	I
2196	Deletion	Stressed	Lexical	Mono	Stop	Consonant	HOLF49	1949	F		I
2197	Deletion	Stressed	Lexical	Mono	Stop	Consonant	HOLM52	1952	M	Not	I
2198	Deletion	Stressed	Lexical	Mono	Stop	Consonant	INGM84	1984	M		I
2199	Realized	Stressed	Lexical	Mono	Stop	Consonant	INGM87	1987	M		I
2200	Realized	Stressed	Lexical	Mono	Stop	Consonant	JOCF91	1991	F		
2201	Realized	Stressed	Lexical	Mono	Stop	Consonant	JOYF91	1991	F		
2202	Realized	Stressed	Lexical	Mono	Stop	Consonant	KAYF29	1929	F	Not	I
2203	Realized	Stressed	Lexical	Mono	Stop	Consonant	KAYM29	1929	M	Not	I
2204	Realized	Stressed	Lexical	Mono	Stop	Consonant	LATF53	1953	F		I
2205	Deletion	Stressed	Lexical	Mono	Stop	Consonant	LEOF66	1966	F		I

2206	Deletion	Stressed	Lexical	Mono	Stop	Consonant	MARM92	1992	M		
2207	Realized	Stressed	Lexical	Mono	Stop	Consonant	MOFM55	1955	M		
2208	Realized	Stressed	Lexical	Mono	Stop	Consonant	MORF91	1991	F		
2209	Deletion	Stressed	Lexical	Mono	Stop	Consonant	NATF84	1984	F		
2210	Realized	Stressed	Lexical	Mono	Stop	Consonant	NEIF49	1949	F		
2211	Deletion	Stressed	Lexical	Mono	Stop	Consonant	PEIF57	1957	F		
2212	Deletion	Stressed	Lexical	Mono	Stop	Consonant	PHAM91	1991	M		
2213	Deletion	Stressed	Lexical	Mono	Stop	Consonant	ROBM64	1964	M		
2214	Deletion	Stressed	Lexical	Mono	Stop	Consonant	ROLF91	1991	F		
2215	Deletion	Stressed	Lexical	Mono	Stop	Consonant	RUDF73	1973	F		
2216	Deletion	Stressed	Lexical	Mono	Stop	Consonant	SAMF61	1961	F		
2217	Realized	Stressed	Lexical	Mono	Stop	Consonant	SILM90	1990	M	Not	
2218	Deletion	Stressed	Lexical	Mono	Stop	Consonant	SMIF58	1958	F	Not	
2219	Deletion	Stressed	Lexical	Mono	Stop	Consonant	SMIM61	1961	M	Not	
2220	Realized	Stressed	Lexical	Mono	Stop	Consonant	STEF99	1999	F		
2221	Deletion	Stressed	Lexical	Mono	Stop	Consonant	STEM42	1942	M	Not	
2222	Deletion	Stressed	Lexical	Mono	Stop	Consonant	VICF91	1991	F		
2223	Deletion	Stressed	Lexical	Mono	Stop	Consonant	VIKF91	1991	F		
2261	Deletion	Stressed	Function	Mono	Stop	Pause	DONF15	1915	F	Not	
2262	Realized	Stressed	Function	Mono	Stop	Pause	DONF15	1915	F	Not	
2263	Realized	Stressed	Lexical	Mono	S	Pause	ARSM91	1991	M		
2264	Realized	Stressed	Lexical	Mono	S	Pause	BEAM91	1991	M		
2265	Realized	Stressed	Lexical	Mono	S	Pause	CARM91	1991	M		
2266	Deletion	Stressed	Lexical	Mono	S	Pause	DAVM90	1990	M		
2267	Realized	Stressed	Lexical	Mono	S	Pause	DELF91	1991	F		
2268	Realized	Stressed	Lexical	Mono	S	Pause	ELLF61	1961	F		
2269	Realized	Stressed	Lexical	Mono	S	Pause	FRAM93	1993	M		
2270	Deletion	Stressed	Lexical	Mono	S	Pause	GAVF93	1993	F		
2271	Realized	Stressed	Lexical	Mono	S	Pause	GOUM91	1991	M		
2272	Deletion	Stressed	Lexical	Mono	S	Pause	HAWM90	1990	M	Not	
2273	Realized	Stressed	Lexical	Mono	S	Pause	JOYF91	1991	F		
2274	Realized	Stressed	Lexical	Mono	S	Pause	LELM91	1991	M		
2275	Deletion	Stressed	Lexical	Mono	S	Pause	MORF91	1991	F		
2276	Deletion	Stressed	Lexical	Mono	S	Pause	PACM94	1994	M		
2277	Realized	Stressed	Lexical	Mono	S	Pause	PHAM91	1991	M		
2278	Realized	Stressed	Lexical	Mono	S	Pause	ROLF91	1991	F		
2279	Realized	Stressed	Lexical	Mono	S	Pause	SILM90	1990	M	Not	
2280	Deletion	Stressed	Lexical	Mono	S	Pause	TAMF91	1991	F		
2281	Deletion	Stressed	Lexical	Mono	S	Pause	VICF91	1991	F		
2282	Realized	Stressed	Lexical	Mono	S	Pause	VIKF91	1991	F		
2283	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	ARSM91	1991	M		
2284	Realized	Stressed	Lexical	Semi-Weak	Liquid	Consonant	BOUF65	1965	F		
2285	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	BOUF65	1965	F		

2286	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	CARM91	1991	M	
2287	Realized	Stressed	Lexical	Semi-Weak	Liquid	Consonant	CHIF55	1955	F	
2288	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	CHIF55	1955	F	
2289	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	CLAF52	1952	F	
2290	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	CLAF52	1952	F	
2291	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	DELF91	1991	F	
2292	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	DONM53	1953	M	
2293	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	DONM53	1953	M	
2294	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	DONM58	1958	M	Not
2295	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	DONM58	1958	M	Not
2296	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	DOUF46	1946	F	
2297	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	DOUF46	1946	F	
2298	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	ELLF29	1929	F	Not
2299	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	ELLF29	1929	F	Not
2300	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	ELLF61	1961	F	
2301	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	EVAF92	1992	F	
2302	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	FRAM93	1993	M	
2303	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	GARF37	1937	F	Not
2304	Realized	Stressed	Lexical	Semi-Weak	Liquid	Consonant	GARM42	1942	M	Not
2305	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	GAVF93	1993	F	
2306	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	GAVM90	1990	M	Not
2307	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	GOUM91	1991	M	
2308	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	GREM45	1945	M	Not
2309	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	HAWM90	1990	M	Not
2310	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	HOLF49	1949	F	
2311	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	HOLF49	1949	F	
2312	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	HOLM52	1952	M	Not
2313	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	HOLM52	1952	M	Not
2314	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	INGM84	1984	M	
2315	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	INGM84	1984	M	
2316	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	INGM87	1987	M	
2317	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	INGM87	1987	M	
2318	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	JOCF91	1991	F	
2319	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	KAYF29	1929	F	Not
2320	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	KAYF29	1929	F	Not
2321	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	KAYM29	1929	M	Not
2322	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	KAYM29	1929	M	Not
2323	Realized	Stressed	Lexical	Semi-Weak	Liquid	Consonant	LATF53	1953	F	
2324	Realized	Stressed	Lexical	Semi-Weak	Liquid	Consonant	LATF53	1953	F	
2325	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	LEOF66	1966	F	
2326	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	LEOF66	1966	F	
2327	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	MARM92	1992	M	
2328	Deletion	Stressed	Lexical	Semi-Weak	Liquid	Consonant	MOFM55	1955	M	

2329	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	NATF84	1984	F	
2330	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	NATF84	1984	F	
2331	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	NEIF49	1949	F	
2332	Realized	Stressed	Lexical	Semi-Weak		Liquid	Consonant	PEIF57	1957	F	
2333	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	PEIF57	1957	F	
2334	Realized	Stressed	Lexical	Semi-Weak		Liquid	Consonant	PHAM91	1991	M	
2335	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	ROBM64	1964	M	
2336	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	ROBM64	1964	M	
2337	Realized	Stressed	Lexical	Semi-Weak		Liquid	Consonant	ROLF91	1991	F	
2338	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	RUDF73	1973	F	
2339	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	RUDF73	1973	F	
2340	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	SAMF61	1961	F	
2341	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	SAMF61	1961	F	
2342	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	SILM90	1990	M	Not
2343	Realized	Stressed	Lexical	Semi-Weak		Liquid	Consonant	SMIF58	1958	F	Not
2344	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	SMIF58	1958	F	Not
2345	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	SMIM61	1961	M	Not
2346	Realized	Stressed	Lexical	Semi-Weak		Liquid	Consonant	STEF99	1999	F	
2347	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	STEF99	1999	F	
2348	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	STEM42	1942	M	Not
2349	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	STEM42	1942	M	Not
2350	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	VICF91	1991	F	
2351	Deletion	Stressed	Lexical	Semi-Weak		Liquid	Consonant	VIKF91	1991	F	
2352	Realized	Stressed	Lexical	Mono		S	Pause	GARF87	1987	F	
2353	Realized	Stressed	Lexical	Mono		S	Pause	HUNF22	1922	F	
2409	Deletion	Stressed	Lexical	Mono		Nasal	Vowel	GARF87	1987	F	
2410	Deletion	Stressed	Lexical	Mono		Nasal	Vowel	GARM85	1985	M	
2411	Deletion	Stressed	Lexical	Mono		Nasal	Vowel	INGM84	1984	M	
2412	Deletion	Stressed	Lexical	Mono		Nasal	Vowel	INGM84	1984	M	
2413	Deletion	Stressed	Lexical	Mono		Nasal	Vowel	INGM84	1984	M	
2414	Realized	Stressed	Function	Mono		Nasal	Vowel	LEOF66	1966	F	
2415	Deletion	Stressed	Lexical	Mono		Nasal	Vowel	MARM92	1992	M	
2416	Deletion	Stressed	Lexical	Mono		Nasal	Vowel	MARM92	1992	M	
2417	Realized	Unstressed	Lexical	Past	Other	Fricative	Vowel	GARF16	1916	F	Not
2418	Realized	Stressed	Lexical	Past		Liquid	Vowel	INGM84	1984	M	
2419	Deletion	Stressed	Lexical	Mono		S	Consonant	ARSM91	1991	M	
2420	Deletion	Stressed	Lexical	Mono		S	Consonant	BEAM91	1991	M	
2421	Deletion	Stressed	Lexical	Mono		S	Consonant	BOUF65	1965	F	
2422	Deletion	Stressed	Lexical	Mono		S	Consonant	CARM91	1991	M	
2423	Deletion	Stressed	Lexical	Mono		S	Consonant	CHIF55	1955	F	
2424	Deletion	Stressed	Lexical	Mono		S	Consonant	CLAF52	1952	F	
2425	Deletion	Stressed	Lexical	Mono		S	Consonant	CONM89	1989	M	
2426	Deletion	Stressed	Lexical	Mono		S	Consonant	DELF91	1991	F	

2427	Deletion	Stressed	Lexical	Mono	S	Consonant	DONM53	1953	M		
2428	Deletion	Stressed	Lexical	Mono	S	Consonant	DONM58	1958	M	Not	
2429	Deletion	Stressed	Lexical	Mono	S	Consonant	DOUF46	1946	F		
2430	Deletion	Stressed	Lexical	Mono	S	Consonant	ELLF29	1929	F	Not	
2431	Deletion	Stressed	Lexical	Mono	S	Consonant	ELLF61	1961	F		
2432	Deletion	Stressed	Lexical	Mono	S	Consonant	EVAF92	1992	F		
2433	Deletion	Stressed	Lexical	Mono	S	Consonant	FRAM93	1993	M		
2434	Deletion	Stressed	Lexical	Mono	S	Consonant	GARF37	1937	F	Not	
2435	Deletion	Stressed	Lexical	Mono	S	Consonant	GARM42	1942	M	Not	
2436	Deletion	Stressed	Lexical	Mono	S	Consonant	GAVF93	1993	F		
2437	Deletion	Stressed	Lexical	Mono	S	Consonant	GAVM90	1990	M	Not	
2438	Realized	Stressed	Lexical	Mono	S	Pause	GAVM90	1990	M	Not	
2439	Deletion	Stressed	Lexical	Mono	S	Consonant	GOUM91	1991	M		
2440	Deletion	Stressed	Lexical	Mono	S	Consonant	GREF22	1922	F	Not	
2441	Realized	Stressed	Lexical	Mono	S	Consonant	GREM45	1945	M	Not	
2442	Deletion	Stressed	Lexical	Mono	S	Consonant	GREM45	1945	M	Not	
2443	Deletion	Stressed	Lexical	Mono	S	Consonant	HAWM90	1990	M	Not	
2444	Deletion	Stressed	Lexical	Mono	S	Consonant	HOLF49	1949	F		
2445	Deletion	Stressed	Lexical	Mono	S	Consonant	HOLM52	1952	M	Not	
2446	Deletion	Stressed	Lexical	Mono	S	Consonant	INGM84	1984	M		
2447	Deletion	Stressed	Lexical	Mono	S	Vowel	INGM84	1984	M		
2448	Deletion	Stressed	Lexical	Mono	S	Consonant	INGM87	1987	M		
2449	Deletion	Stressed	Lexical	Mono	S	Consonant	JOCF91	1991	F		
2450	Deletion	Stressed	Lexical	Mono	S	Consonant	JOYF91	1991	F		
2451	Deletion	Stressed	Lexical	Mono	S	Consonant	KAYF29	1929	F	Not	
2452	Deletion	Stressed	Lexical	Mono	S	Consonant	KAYM29	1929	M	Not	
2453	Realized	Stressed	Lexical	Mono	S	Consonant	LATF53	1953	F		
2454	Realized	Stressed	Lexical	Mono	S	Consonant	LEOF66	1966	F		
2455	Deletion	Stressed	Lexical	Mono	S	Consonant	MARM92	1992	M		
2456	Deletion	Stressed	Lexical	Mono	S	Consonant	MOFM55	1955	M		
2457	Deletion	Stressed	Lexical	Mono	S	Consonant	MORF91	1991	F		
2458	Deletion	Stressed	Lexical	Mono	S	Consonant	NATF84	1984	F		
2459	Deletion	Stressed	Lexical	Mono	S	Consonant	NEIF49	1949	F		
2460	Realized	Stressed	Lexical	Mono	S	Consonant	PEIF57	1957	F		
2461	Deletion	Stressed	Lexical	Mono	S	Consonant	PHAM91	1991	M		
2462	Deletion	Stressed	Lexical	Mono	S	Consonant	ROBM64	1964	M		
2463	Deletion	Stressed	Lexical	Mono	S	Consonant	ROLF91	1991	F		
2464	Deletion	Stressed	Lexical	Mono	S	Consonant	RUDF73	1973	F		
2465	Deletion	Stressed	Lexical	Mono	S	Consonant	SAMF61	1961	F		
2466	Deletion	Stressed	Lexical	Mono	S	Consonant	SILM90	1990	M	Not	
2467	Deletion	Stressed	Lexical	Mono	S	Consonant	SMIF58	1958	F	Not	
2468	Deletion	Stressed	Lexical	Mono	S	Consonant	SMIM61	1961	M	Not	
2469	Deletion	Stressed	Lexical	Mono	S	Consonant	STEF99	1999	F		

2470	Deletion	Stressed	Lexical	Mono	S	Consonant	STEM42	1942	M	Not	I
2471	Deletion	Stressed	Lexical	Mono	S	Consonant	TAMF91	1991	F		
2472	Deletion	Stressed	Lexical	Mono	S	Consonant	VICF91	1991	F		
2473	Deletion	Stressed	Lexical	Mono	S	Consonant	VIKF91	1991	F		
2475	Deletion	Unstressed	Lexical	Mono	Nasal	Vowel	INGM87	1987	M		I
2678	Realized	Stressed	Function	Mono	Liquid	Pause	MARM92	1992	M		
2681	Realized	Stressed	Lexical	Semi-Weak	Nasal	Pause	ELLF61	1961	F		I
2682	Realized	Stressed	Lexical	Semi-Weak	Nasal	Pause	EVAF92	1992	F		
2683	Realized	Stressed	Lexical	Semi-Weak	Nasal	Pause	GARF37	1937	F	Not	I
2684	Realized	Stressed	Lexical	Semi-Weak	Nasal	Pause	HUNF22	1922	F		I
2685	Realized	Stressed	Lexical	Semi-Weak	Nasal	Pause	INGM84	1984	M		I
2686	Realized	Stressed	Lexical	Semi-Weak	Nasal	Pause	INGM84	1984	M		I
2687	Deletion	Stressed	Lexical	Semi-Weak	Nasal	Pause	MARM92	1992	M		
2688	Realized	Stressed	Lexical	Semi-Weak	Nasal	Pause	PACM94	1994	M		
2724	Realized	Unstressed	Lexical	Mono	Nasal	Vowel	GARF87	1987	F		I
2725	Realized	Unstressed	Lexical	Mono	Nasal	Vowel	GARM85	1985	M		I
2726	Realized	Stressed	Lexical	Mono	Nasal	Vowel	DONF15	1915	F	Not	I
2746	Realized	Stressed	Lexical	Mono	S	Pause	GARF87	1987	F		I
2747	Realized	Stressed	Lexical	Mono	S	Pause	HUNF22	1922	F		I
2830	Realized	Stressed	Lexical	Mono	Liquid	Pause	HUNF22	1922	F		I
2885	Deletion	Stressed	Lexical	Mono	Nasal	Pause	PACM94	1994	M		
3035	Realized	Stressed	Lexical	Mono	Nasal	Pause	ELLF61	1961	F		I
3036	Realized	Stressed	Lexical	Mono	Nasal	Pause	GARF37	1937	F	Not	I
3037	Deletion	Stressed	Lexical	Mono	Nasal	Pause	GREF22	1922	F	Not	I
3038	Realized	Stressed	Lexical	Mono	Nasal	Pause	HUNF22	1922	F		I
3039	Realized	Stressed	Lexical	Mono	Nasal	Pause	MARM92	1992	M		
3040	Realized	Stressed	Lexical	Mono	Nasal	Pause	PACM94	1994	M		
3041	Realized	Stressed	Lexical	Mono	Nasal	Pause	PACM94	1994	M		
3076	Realized	Stressed	Lexical	Mono	Liquid	Vowel	INGM84	1984	M		I
3251	Realized	Stressed	Lexical	Mono	Nasal	Pause	GARF87	1987	F		I
3254	Deletion	Unstressed	Lexical	Past	Nasal	Vowel	INGM84	1984	M		I
3255	Deletion	Unstressed	Lexical	Past	Nasal	Pause	INGM84	1984	M		I
3316	Deletion	Unstressed	Function	Mono	Nasal	Pause	LEOF66	1966	F		I
3415	Realized	Stressed	Lexical	Past	Liquid	Pause	GARF87	1987	F		I
3416	Realized	Stressed	Lexical	Past	Liquid	Pause	HUNF22	1922	F		I
3417	Realized	Stressed	Lexical	Semi-Weak	Liquid	Vowel	DONF15	1915	F	Not	I
3418	Realized	Stressed	Lexical	Semi-Weak	Liquid	Vowel	LEOF66	1966	F		I
3419	Realized	Stressed	Lexical	Mono	Liquid	H	GARF87	1987	F		I
3420	Realized	Stressed	Lexical	Mono	Liquid	H	GARF87	1987	F		I
3421	Deletion	Stressed	Lexical	Mono	Liquid	H	GARM85	1985	M		I
3422	Realized	Stressed	Lexical	Mono	Liquid	Pause	GARF87	1987	F		I
3518	Realized	Stressed	Lexical	Mono	S	Pause	ARSM91	1991	M		I
3519	Realized	Stressed	Lexical	Mono	S	Pause	BEAM91	1991	M		

3520	Realized	Stressed	Lexical	Mono	S	Pause	BOUF65	1965	F	
3521	Realized	Stressed	Lexical	Mono	S	Pause	CARM91	1991	M	
3522	Realized	Stressed	Lexical	Mono	S	Pause	CHIF55	1955	F	
3523	Realized	Stressed	Lexical	Mono	S	Pause	CLAF52	1952	F	
3524	Deletion	Stressed	Lexical	Mono	S	Pause	CLAM73	1973	M	Not
3525	Realized	Stressed	Lexical	Mono	S	Pause	DAVM90	1990	M	
3526	Realized	Stressed	Lexical	Mono	S	Pause	DELF91	1991	F	
3527	Realized	Stressed	Lexical	Mono	S	Pause	DONM41	1941	M	Not
3528	Realized	Stressed	Lexical	Mono	S	Pause	DONM53	1953	M	
3529	Realized	Stressed	Lexical	Mono	S	Pause	DONM58	1958	M	Not
3530	Realized	Stressed	Lexical	Mono	S	Pause	DOUF46	1946	F	
3531	Realized	Stressed	Lexical	Mono	S	Pause	ELLF29	1929	F	Not
3532	Realized	Stressed	Lexical	Mono	S	Pause	ELLF61	1961	F	
3533	Realized	Stressed	Lexical	Mono	S	Pause	FRAM93	1993	M	
3534	Realized	Stressed	Lexical	Mono	S	Pause	GARF16	1916	F	Not
3535	Realized	Stressed	Lexical	Mono	S	Pause	GARM42	1942	M	Not
3536	Realized	Stressed	Lexical	Mono	S	Pause	GAVF93	1993	F	
3537	Deletion	Stressed	Lexical	Mono	S	Pause	GAVM90	1990	M	Not
3538	Realized	Stressed	Lexical	Mono	S	Pause	GOUM91	1991	M	
3539	Realized	Stressed	Lexical	Mono	S	Pause	GREM45	1945	M	Not
3540	Realized	Stressed	Lexical	Mono	S	Pause	HANF83	1983	F	
3541	Realized	Stressed	Lexical	Mono	S	Pause	HANF83	1983	F	
3542	Deletion	Stressed	Lexical	Mono	S	Pause	HANM57	1957	M	Not
3543	Deletion	Stressed	Lexical	Mono	S	Pause	HAWM90	1990	M	Not
3544	Realized	Stressed	Lexical	Mono	S	Pause	HOLF49	1949	F	
3545	Realized	Stressed	Lexical	Mono	S	Pause	HOLM52	1952	M	Not
3546	Realized	Stressed	Lexical	Mono	S	Pause	INGM84	1984	M	
3547	Realized	Stressed	Lexical	Mono	S	Pause	INGM87	1987	M	
3548	Realized	Stressed	Lexical	Mono	S	Pause	JOCF91	1991	F	
3549	Realized	Stressed	Lexical	Mono	S	Pause	JOYF91	1991	F	
3550	Realized	Stressed	Lexical	Mono	S	Pause	KAYF29	1929	F	Not
3551	Realized	Stressed	Lexical	Mono	S	Pause	KAYM29	1929	M	Not
3552	Realized	Stressed	Lexical	Mono	S	Pause	LATF53	1953	F	
3553	Realized	Stressed	Lexical	Mono	S	Pause	LELM91	1991	M	
3554	Realized	Stressed	Lexical	Mono	S	Pause	LEOF66	1966	F	
3555	Deletion	Stressed	Lexical	Mono	S	Pause	MOFM55	1955	M	
3556	Realized	Stressed	Lexical	Mono	S	Pause	MORF91	1991	F	
3557	Realized	Stressed	Lexical	Mono	S	Pause	NATF84	1984	F	
3558	Realized	Stressed	Lexical	Mono	S	Pause	NEIF49	1949	F	
3559	Realized	Stressed	Lexical	Mono	S	Pause	PEIF57	1957	F	
3560	Realized	Stressed	Lexical	Mono	S	Pause	PHAM91	1991	M	
3561	Realized	Stressed	Lexical	Mono	S	Pause	ROBM64	1964	M	
3562	Realized	Stressed	Lexical	Mono	S	Pause	ROLF91	1991	F	

3563	Realized	Stressed	Lexical	Mono	S	Pause	RUDF73	1973	F		
3564	Realized	Stressed	Lexical	Mono	S	Pause	SILM90	1990	M	Not	
3565	Realized	Stressed	Lexical	Mono	S	Pause	SMIF58	1958	F	Not	
3566	Realized	Stressed	Lexical	Mono	S	Pause	SMIM61	1961	M	Not	
3567	Deletion	Stressed	Lexical	Mono	S	Pause	STAM21	1921	M	Not	
3568	Realized	Stressed	Lexical	Mono	S	Pause	STEF99	1999	F		
3569	Realized	Stressed	Lexical	Mono	S	Pause	STEM42	1942	M	Not	
3570	Realized	Stressed	Lexical	Mono	S	Pause	STEM65	1965	M	Not	
3571	Realized	Stressed	Lexical	Mono	S	Pause	TAMF91	1991	F		
3572	Deletion	Stressed	Lexical	Mono	S	Pause	VICF91	1991	F		
3573	Realized	Stressed	Lexical	Mono	S	Pause	VIKF91	1991	F		
3574	Realized	Stressed	Lexical	Mono	Liquid	Vowel	GARF37	1937	F	Not	
3575	Realized	Stressed	Lexical	Mono	Liquid	Vowel	MARM92	1992	M		
3576	Realized	Stressed	Lexical	Mono	Liquid	Vowel	PHAM91	1991	M		
3577	Realized	Stressed	Lexical	Mono	Liquid	Vowel	ROLF91	1991	F		
3642	Deletion	Unstressed	Lexical	Mono	Liquid	Pause	GREF22	1922	F	Not	
3651	Deletion	Unstressed	Lexical	Mono	Liquid	Pause	INGM84	1984	M		
3652	Deletion	Unstressed	Lexical	Mono	Liquid	Pause	INGM84	1984	M		
3708	Deletion	Unstressed	Lexical	Mono	Nasal	Pause	DONF15	1915	F	Not	
3841	Realized	Stressed	Lexical	Past	Nasal	Pause	ELLF61	1961	F		
3842	Realized	Stressed	Lexical	Past	Nasal	Pause	EVAF92	1992	F		
3843	Realized	Stressed	Lexical	Past	Nasal	Pause	GARF37	1937	F	Not	
3844	Realized	Stressed	Lexical	Past	Nasal	Pause	HUNF22	1922	F		
3845	Deletion	Stressed	Lexical	Past	Nasal	Pause	MARM92	1992	M		
3846	Realized	Stressed	Lexical	Past	Nasal	Pause	PACM94	1994	M		
3847	Deletion	Stressed	Lexical	Mono	S	Pause	HANM57	1957	M	Not	
3848	Deletion	Stressed	Lexical	Past	Other Fricative	Pause	INGM84	1984	M		
3849	Deletion	Stressed	Lexical	Mono	S	Vowel	GARF87	1987	F		
3850	Deletion	Stressed	Lexical	Mono	S	Pause	MARM92	1992	M		
3851	Deletion	Stressed	Lexical	Mono	S	Pause	MARM92	1992	M		
3852	Deletion	Stressed	Lexical	Mono	S	Pause	MARM92	1992	M		
3853	Deletion	Stressed	Lexical	Mono	S	Pause	MARM92	1992	M		
3910	Realized	Stressed	Lexical	Past	Stop	Vowel	GARF87	1987	F		
3945	Deletion	Stressed	Lexical	Mono	Nasal	Vowel	MARM92	1992	M		
4040	Realized	Stressed	Lexical	Mono	S	H	GARM85	1985	M		
4069	Realized	Stressed	Lexical	Past	Nasal	Vowel	GARF87	1987	F		
4070	Realized	Stressed	Lexical	Past	Liquid	Pause	GARF87	1987	F		
4071	Realized	Stressed	Lexical	Past	Liquid	Vowel	GARF87	1987	F		
4072	Realized	Stressed	Lexical	Past	Nasal	Vowel	INGM84	1984	M		
4073	Realized	Stressed	Lexical	Past	Liquid	Vowel	INGM84	1984	M		
4074	Realized	Stressed	Lexical	Semi-Weak	Other Fricative	Pause	DONF15	1915	F	Not	
4075	Realized	Stressed	Lexical	Semi-Weak	Other Fricative	Vowel	GARF87	1987	F		
4076	Realized	Stressed	Lexical	Semi-Weak	Other Fricative	Vowel	GARM85	1985	M		

4113	Deletion	Stressed	Lexical	Mono		S	Pause	GARF16	1916	F	Not
4114	Realized	Stressed	Lexical	Mono		S	Pause	GARF87	1987	F	
4115	Realized	Stressed	Lexical	Mono		S	Pause	LEOF66	1966	F	
4116	Realized	Stressed	Lexical	Mono		S	Pause	NEIF49	1949	F	
4117	Realized	Stressed	Lexical	Past	Other Fricative		Vowel	DONF15	1915	F	Not
4118	Realized	Stressed	Lexical	Past	Other Fricative		Vowel	DONF15	1915	F	Not
4121	Realized	Stressed	Lexical	Past	Other Fricative		H	GARF16	1916	F	Not
4122	Realized	Stressed	Lexical	Past	Other Fricative		Pause	GARF16	1916	F	Not
4123	Realized	Stressed	Lexical	Past	Other Fricative		Vowel	GARF87	1987	F	
4124	Realized	Stressed	Lexical	Semi-Weak		S	Pause	ARSM91	1991	M	
4125	Realized	Stressed	Lexical	Semi-Weak		S	Pause	BEAM91	1991	M	
4126	Realized	Stressed	Lexical	Semi-Weak		S	Pause	CARM91	1991	M	
4128	Realized	Stressed	Lexical	Semi-Weak		S	Pause	DELF91	1991	F	
4129	Realized	Stressed	Lexical	Semi-Weak		S	Pause	ELLF61	1961	F	
4130	Realized	Stressed	Lexical	Semi-Weak		S	Pause	FRAM93	1993	M	
4131	Realized	Stressed	Lexical	Semi-Weak		S	Vowel	GARF87	1987	F	
4132	Deletion	Stressed	Lexical	Semi-Weak		S	H	GARF87	1987	F	
4133	Realized	Stressed	Lexical	Semi-Weak		S	Vowel	GARM85	1985	M	
4134	Realized	Stressed	Lexical	Semi-Weak		S	H	GARM85	1985	M	
4136	Deletion	Stressed	Lexical	Semi-Weak		S	Pause	GAVM90	1990	M	Not
4137	Deletion	Stressed	Lexical	Semi-Weak		S	Pause	GOUM91	1991	M	
4138	Deletion	Stressed	Lexical	Semi-Weak		S	Pause	HAWM90	1990	M	Not
4139	Realized	Stressed	Lexical	Semi-Weak		S	Pause	JOCF91	1991	F	
4140	Realized	Stressed	Lexical	Semi-Weak		S	Pause	JOYF91	1991	F	
4141	Realized	Stressed	Lexical	Semi-Weak		S	Pause	LELM91	1991	M	
4142	Deletion	Stressed	Lexical	Semi-Weak		S	Pause	MORF91	1991	F	
4143	Deletion	Stressed	Lexical	Semi-Weak		S	Pause	PACM94	1994	M	
4144	Deletion	Stressed	Lexical	Semi-Weak		S	Pause	PHAM91	1991	M	
4145	Realized	Stressed	Lexical	Semi-Weak		S	Pause	ROLF91	1991	F	
4147	Realized	Stressed	Lexical	Semi-Weak		S	Pause	SILM90	1990	M	Not
4148	Deletion	Stressed	Lexical	Semi-Weak		S	Pause	TAMF91	1991	F	
4149	Deletion	Stressed	Lexical	Semi-Weak		S	Pause	VICF91	1991	F	
4150	Deletion	Stressed	Lexical	Semi-Weak		S	Pause	VIKF91	1991	F	
4273	Realized	Stressed	Lexical	Mono		S	Pause	ARSM91	1991	M	
4274	Realized	Stressed	Lexical	Mono		S	Pause	BEAM91	1991	M	
4275	Realized	Stressed	Lexical	Mono		S	Pause	BOUF65	1965	F	
4276	Realized	Stressed	Lexical	Mono		S	Pause	CARM91	1991	M	
4277	Realized	Stressed	Lexical	Mono		S	Pause	CHIF55	1955	F	
4278	Realized	Stressed	Lexical	Mono		S	Pause	CLAF52	1952	F	
4279	Realized	Stressed	Lexical	Mono		S	Pause	CLAM73	1973	M	Not
4280	Realized	Stressed	Lexical	Mono		S	Pause	DAVM90	1990	M	
4281	Realized	Stressed	Lexical	Mono		S	Pause	DELF91	1991	F	
4282	Realized	Stressed	Lexical	Mono		S	Pause	DONM41	1941	M	Not

4283	Realized	Stressed	Lexical	Mono	S	Pause	DONM53	1953	M		
4284	Realized	Stressed	Lexical	Mono	S	Pause	DONM58	1958	M	Not	
4285	Realized	Stressed	Lexical	Mono	S	Pause	DOUF46	1946	F		
4286	Realized	Stressed	Lexical	Mono	S	Pause	ELLF61	1961	F		
4287	Realized	Stressed	Lexical	Mono	S	Pause	FRAM93	1993	M		
4288	Realized	Stressed	Lexical	Mono	S	Pause	GARF16	1916	F	Not	
4289	Realized	Stressed	Lexical	Mono	S	Pause	GARM42	1942	M	Not	
4290	Realized	Stressed	Lexical	Mono	S	Pause	GAVF93	1993	F		
4291	Realized	Stressed	Lexical	Mono	S	Pause	GOUM91	1991	M		
4292	Realized	Stressed	Lexical	Mono	S	Pause	GREM45	1945	M	Not	
4293	Realized	Stressed	Lexical	Mono	S	Pause	HANF83	1983	F		
4294	Realized	Stressed	Lexical	Mono	S	Pause	HANF83	1983	F		
4295	Deletion	Stressed	Lexical	Mono	S	Pause	HANM57	1957	M	Not	
4296	Deletion	Stressed	Lexical	Mono	S	Pause	HAWM90	1990	M	Not	
4297	Realized	Stressed	Lexical	Mono	S	Pause	HOLF49	1949	F		
4298	Realized	Stressed	Lexical	Mono	S	Pause	HOLM52	1952	M	Not	
4299	Realized	Stressed	Lexical	Mono	S	Pause	INGM84	1984	M		
4300	Realized	Stressed	Lexical	Mono	S	Pause	INGM87	1987	M		
4301	Realized	Stressed	Lexical	Mono	S	Pause	JOCF91	1991	F		
4302	Realized	Stressed	Lexical	Mono	S	Pause	JOYF91	1991	F		
4303	Realized	Stressed	Lexical	Mono	S	Pause	KAYF29	1929	F	Not	
4304	Realized	Stressed	Lexical	Mono	S	Pause	KAYM29	1929	M	Not	
4305	Realized	Stressed	Lexical	Mono	S	Pause	LATF53	1953	F		
4306	Realized	Stressed	Lexical	Mono	S	Pause	LELM91	1991	M		
4307	Realized	Stressed	Lexical	Mono	S	Pause	LEOF66	1966	F		
4308	Realized	Stressed	Lexical	Mono	S	Pause	MOFM55	1955	M		
4309	Realized	Stressed	Lexical	Mono	S	Pause	MORF91	1991	F		
4310	Realized	Stressed	Lexical	Mono	S	Pause	NEIF49	1949	F		
4311	Deletion	Stressed	Lexical	Mono	S	Pause	PEIF57	1957	F		
4312	Realized	Stressed	Lexical	Mono	S	Pause	PHAM91	1991	M		
4313	Realized	Stressed	Lexical	Mono	S	Pause	ROBM64	1964	M		
4314	Realized	Stressed	Lexical	Mono	S	Pause	ROLF91	1991	F		
4315	Realized	Stressed	Lexical	Mono	S	Pause	RUDF73	1973	F		
4316	Realized	Stressed	Lexical	Mono	S	Pause	SAMF61	1961	F		
4317	Realized	Stressed	Lexical	Mono	S	Pause	SILM90	1990	M	Not	
4318	Realized	Stressed	Lexical	Mono	S	Pause	SMIF58	1958	F	Not	
4319	Realized	Stressed	Lexical	Mono	S	Pause	SMIM61	1961	M	Not	
4320	Deletion	Stressed	Lexical	Mono	S	Pause	STAM21	1921	M	Not	
4321	Realized	Stressed	Lexical	Mono	S	Pause	STEM42	1942	M	Not	
4322	Realized	Stressed	Lexical	Mono	S	Pause	STEM65	1965	M	Not	
4323	Realized	Stressed	Lexical	Mono	S	Pause	TAMF91	1991	F		
4324	Deletion	Stressed	Lexical	Mono	S	Pause	VICF91	1991	F		
4325	Realized	Stressed	Lexical	Mono	S	Pause	VIKF91	1991	F		

4326	Realized	Stressed	Function	Mono	S	Vowel	GARF16	1916	F	Not	I
4327	Realized	Stressed	Function	Mono	S	Vowel	INGM84	1984	M		I
4328	Deletion	Stressed	Function	Mono	S	Pause	MARM92	1992	M		
4331	Realized	Stressed	Lexical	Mono	Nasal	Pause	DONM41	1941	M	Not	I
4332	Deletion	Stressed	Lexical	Mono	Nasal	Pause	DONM41	1941	M	Not	I
4333	Deletion	Stressed	Lexical	Mono	Nasal	Pause	DONM41	1941	M	Not	I
4334	Deletion	Stressed	Lexical	Mono	Nasal	Pause	GARF87	1987	F		I
4335	Deletion	Stressed	Lexical	Mono	S	Pause	DONF15	1915	F	Not	I
4336	Deletion	Stressed	Lexical	Mono	S	Vowel	GARF16	1916	F	Not	I
4337	Deletion	Stressed	Lexical	Mono	S	Pause	NATF84	1984	F		I
4377	Realized	Stressed	Lexical	Mono	S	Pause	LELM91	1991	M		
4523	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	ARSM91	1991	M		I
4525	Realized	Stressed	Lexical	Mono	Liquid	H	BOUF65	1965	F		I
4528	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	CHIF55	1955	F		I
4529	Realized	Stressed	Lexical	Mono	Liquid	H	CHIF55	1955	F		I
4531	Realized	Stressed	Lexical	Mono	Liquid	H	CLAF52	1952	F		I
4536	Deletion	Stressed	Lexical	Mono	Liquid	Pause	DONF15	1915	F	Not	I
4537	Realized	Stressed	Lexical	Mono	Liquid	Vowel	DONF15	1915	F	Not	I
4538	Realized	Stressed	Lexical	Mono	Liquid	H	DONM53	1953	M		I
4540	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	DONM58	1958	M	Not	I
4541	Realized	Stressed	Lexical	Mono	Liquid	H	DONM58	1958	M	Not	I
4542	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	DOUF46	1946	F		I
4543	Deletion	Stressed	Lexical	Mono	Liquid	H	DOUF46	1946	F		I
4544	Deletion	Stressed	Lexical	Mono	Liquid	Vowel	ELLF29	1929	F	Not	I
4545	Deletion	Stressed	Lexical	Mono	Liquid	H	ELLF29	1929	F	Not	I
4546	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	ELLF61	1961	F		I
4547	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	EVAF92	1992	F		
4551	Deletion	Stressed	Lexical	Mono	Liquid	Vowel	GARF87	1987	F		I
4553	Deletion	Stressed	Lexical	Mono	Liquid	H	GARM42	1942	M	Not	I
4555	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	GAVF93	1993	F		
4558	Realized	Stressed	Lexical	Mono	Liquid	Consonant	GREF22	1922	F	Not	I
4559	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	GREM45	1945	M	Not	I
4560	Deletion	Stressed	Lexical	Mono	Liquid	H	GREM45	1945	M	Not	I
4562	Deletion	Stressed	Lexical	Mono	Liquid	H	HOLF49	1949	F		I
4563	Deletion	Stressed	Lexical	Mono	Liquid	H	HOLM52	1952	M	Not	I
4565	Realized	Stressed	Lexical	Mono	Liquid	H	INGM84	1984	M		I
4566	Deletion	Stressed	Lexical	Mono	Liquid	Pause	INGM84	1984	M		I
4567	Realized	Stressed	Lexical	Mono	Liquid	H	INGM87	1987	M		I
4571	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	KAYF29	1929	F	Not	I
4572	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	KAYM29	1929	M	Not	I
4573	Deletion	Stressed	Lexical	Mono	Liquid	H	KAYM29	1929	M	Not	I
4574	Realized	Stressed	Lexical	Mono	Liquid	H	LATF53	1953	F		I
4577	Realized	Stressed	Lexical	Mono	Liquid	Consonant	LEOF66	1966	F		I

4578	Realized	Stressed	Lexical	Mono	Liquid	H	LEOF66	1966	F		
4580	Realized	Stressed	Lexical	Mono	Liquid	H	MOFM55	1955	M		
4583	Realized	Stressed	Lexical	Mono	Liquid	H	NATF84	1984	F		
4584	Deletion	Stressed	Lexical	Mono	Liquid	H	NATF84	1984	F		
4586	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	NEIF49	1949	F		
4587	Deletion	Stressed	Lexical	Mono	Liquid	H	NEIF49	1949	F		
4588	Deletion	Stressed	Lexical	Mono	Liquid	H	PEIF57	1957	F		
4591	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	ROBM64	1964	M		
4592	Deletion	Stressed	Lexical	Mono	Liquid	H	ROBM64	1964	M		
4593	Realized	Stressed	Lexical	Mono	Liquid	Consonant	ROLF91	1991	F		
4594	Realized	Stressed	Lexical	Mono	Liquid	H	RUDF73	1973	F		
4596	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	SAMF61	1961	F		
4597	Deletion	Stressed	Lexical	Mono	Liquid	H	SAMF61	1961	F		
4599	Realized	Stressed	Lexical	Mono	Liquid	H	SMIF58	1958	F	Not	
4601	Deletion	Stressed	Lexical	Mono	Liquid	Consonant	SMIM61	1961	M	Not	
4602	Deletion	Stressed	Lexical	Mono	Liquid	H	SMIM61	1961	M	Not	
4603	Realized	Stressed	Lexical	Mono	Liquid	H	STEF99	1999	F		
4734	Realized	Stressed	Lexical	Past	Nasal	Vowel	GARF87	1987	F		
4735	Realized	Stressed	Lexical	Past	Stop	Vowel	ARSM91	1991	M		
4791	Realized	Stressed	Lexical	Mono	Liquid	Vowel	GREM45	1945	M	Not	
4792	Realized	Stressed	Lexical	Mono	Liquid	Vowel	INGM84	1984	M		
4858	Deletion	Unstressed	Lexical	Mono	Stop	Pause	INGM84	1984	M		
4859	Realized	Unstressed	Lexical	Mono	Stop	Pause	INGM84	1984	M		
4980	Realized	Stressed	Lexical	Past	Stop	H	BEAM91	1991	M		
4981	Realized	Stressed	Lexical	Past	Stop	Vowel	BOUF65	1965	F		
4982	Realized	Stressed	Lexical	Past	Stop	Vowel	CARM91	1991	M		
4983	Realized	Stressed	Lexical	Past	Stop	Vowel	CHIF55	1955	F		
4984	Realized	Stressed	Lexical	Past	Stop	Vowel	CLAF52	1952	F		
4985	Realized	Stressed	Lexical	Past	Stop	Vowel	CONM89	1989	M		
4986	Realized	Stressed	Lexical	Past	Stop	Vowel	DELF91	1991	F		
4987	Realized	Stressed	Lexical	Past	Stop	Vowel	DONM53	1953	M		
4988	Realized	Stressed	Lexical	Past	Stop	Vowel	DONM58	1958	M	Not	
4989	Realized	Stressed	Lexical	Past	Stop	Vowel	DOUF46	1946	F		
4990	Realized	Stressed	Lexical	Past	Stop	Vowel	ELLF29	1929	F	Not	
4991	Realized	Stressed	Lexical	Past	Stop	Vowel	ELLF61	1961	F		
4992	Realized	Stressed	Lexical	Past	Stop	Vowel	EVAF92	1992	F		
4993	Realized	Stressed	Lexical	Past	Stop	Vowel	FRAM93	1993	M		
4994	Realized	Stressed	Lexical	Past	Stop	Vowel	GARF37	1937	F	Not	
4995	Realized	Stressed	Lexical	Past	Stop	Vowel	GARM42	1942	M	Not	
4996	Realized	Stressed	Lexical	Past	Stop	Vowel	GAVF93	1993	F		
4997	Realized	Stressed	Lexical	Past	Stop	Vowel	GAVM90	1990	M	Not	
4998	Realized	Stressed	Lexical	Past	Stop	Vowel	GOUM91	1991	M		
4999	Realized	Stressed	Lexical	Past	Stop	Vowel	GREF22	1922	F	Not	

5000	Realized	Stressed	Lexical	Past	Stop	Vowel	GREM45	1945	M	Not
5001	Realized	Stressed	Lexical	Past	Stop	Vowel	HAWM90	1990	M	Not
5002	Realized	Stressed	Lexical	Past	Stop	Vowel	HOLF49	1949	F	
5003	Realized	Stressed	Lexical	Past	Stop	Vowel	HOLM52	1952	M	Not
5004	Realized	Stressed	Lexical	Past	Stop	Vowel	INGM84	1984	M	
5005	Realized	Stressed	Lexical	Past	Stop	Vowel	INGM87	1987	M	
5006	Realized	Stressed	Lexical	Past	Stop	Vowel	JOCF91	1991	F	
5007	Realized	Stressed	Lexical	Past	Stop	Vowel	JOYF91	1991	F	
5008	Realized	Stressed	Lexical	Past	Stop	Vowel	KAYM29	1929	M	Not
5009	Realized	Stressed	Lexical	Past	Stop	Vowel	LATF53	1953	F	
5010	Realized	Stressed	Lexical	Past	Stop	Vowel	LEOF66	1966	F	
5011	Realized	Stressed	Lexical	Past	Stop	Vowel	MARM92	1992	M	
5012	Realized	Stressed	Lexical	Past	Stop	Vowel	MOFM55	1955	M	
5013	Realized	Stressed	Lexical	Past	Stop	Vowel	MORF91	1991	F	
5014	Realized	Stressed	Lexical	Past	Stop	Vowel	NEIF49	1949	F	
5015	Realized	Stressed	Lexical	Past	Stop	Vowel	PEIF57	1957	F	
5016	Realized	Stressed	Lexical	Past	Stop	Vowel	PHAM91	1991	M	
5017	Realized	Stressed	Lexical	Past	Stop	Vowel	ROBM64	1964	M	
5018	Realized	Stressed	Lexical	Past	Stop	Vowel	ROLF91	1991	F	
5019	Realized	Stressed	Lexical	Past	Stop	Vowel	RUDF73	1973	F	
5020	Realized	Stressed	Lexical	Past	Stop	Vowel	SAMF61	1961	F	
5021	Realized	Stressed	Lexical	Past	Stop	Vowel	SILM90	1990	M	Not
5022	Realized	Stressed	Lexical	Past	Stop	Vowel	SMIF58	1958	F	Not
5023	Realized	Stressed	Lexical	Past	Stop	Vowel	SMIM61	1961	M	Not
5024	Realized	Stressed	Lexical	Past	Stop	Vowel	STEF99	1999	F	
5025	Realized	Stressed	Lexical	Past	Stop	Vowel	STEM42	1942	M	Not
5026	Realized	Stressed	Lexical	Past	Stop	Vowel	VICF91	1991	F	
5027	Realized	Stressed	Lexical	Past	Stop	Vowel	VIKF91	1991	F	
5104	Deletion	Stressed	Lexical	Past	Liquid	Pause	HUNF22	1922	F	
5121	Realized	Stressed	Lexical	Mono	Nasal	Pause	ARSM91	1991	M	
5122	Realized	Stressed	Lexical	Mono	Nasal	Pause	ARSM91	1991	M	
5123	Realized	Stressed	Lexical	Mono	Nasal	Pause	BEAM91	1991	M	
5124	Realized	Stressed	Lexical	Mono	Nasal	Pause	CARM91	1991	M	
5125	Realized	Stressed	Lexical	Mono	Nasal	Pause	DAVM90	1990	M	
5126	Realized	Stressed	Lexical	Mono	Nasal	Pause	DELF91	1991	F	
5127	Realized	Stressed	Lexical	Mono	Nasal	Pause	ELLF61	1961	F	
5128	Realized	Stressed	Lexical	Mono	Nasal	Pause	ELLF61	1961	F	
5129	Realized	Stressed	Lexical	Mono	Nasal	Pause	EVAF92	1992	F	
5130	Realized	Stressed	Lexical	Mono	Nasal	Pause	FRAM93	1993	M	
5131	Realized	Stressed	Lexical	Mono	Nasal	Pause	GARF37	1937	F	Not
5132	Deletion	Stressed	Lexical	Mono	Nasal	Pause	GAVF93	1993	F	
5133	Realized	Stressed	Lexical	Mono	Nasal	Pause	GAVM90	1990	M	Not
5134	Realized	Stressed	Lexical	Mono	Nasal	Pause	GOUM91	1991	M	

5135	Deletion	Stressed	Lexical	Mono	Nasal	Pause	GREF22	1922	F	Not	I
5136	Deletion	Stressed	Lexical	Mono	Nasal	Pause	HAWM90	1990	M	Not	I
5137	Realized	Stressed	Lexical	Mono	Nasal	Pause	HUNF22	1922	F		I
5138	Realized	Stressed	Lexical	Mono	Nasal	Pause	JOCF91	1991	F		
5139	Realized	Stressed	Lexical	Mono	Nasal	Pause	JOYF91	1991	F		
5140	Realized	Stressed	Lexical	Mono	Nasal	Pause	LELM91	1991	M		
5141	Realized	Stressed	Lexical	Mono	Nasal	Pause	MARM92	1992	M		
5142	Realized	Stressed	Lexical	Mono	Nasal	Pause	MORF91	1991	F		
5143	Realized	Stressed	Lexical	Mono	Nasal	Pause	PACM94	1994	M		
5144	Realized	Stressed	Lexical	Mono	Nasal	Pause	PHAM91	1991	M		
5145	Realized	Stressed	Lexical	Mono	Nasal	Pause	ROLF91	1991	F		
5146	Realized	Stressed	Lexical	Mono	Nasal	Pause	SILM90	1990	M	Not	I
5147	Realized	Stressed	Lexical	Mono	Nasal	Pause	TAMF91	1991	F		
5148	Realized	Stressed	Lexical	Mono	Nasal	Pause	VICF91	1991	F		
5149	Realized	Stressed	Lexical	Mono	Nasal	Pause	VIKF91	1991	F		
5150	Deletion	Stressed	Lexical	Mono	Nasal	Vowel	DONF15	1915	F	Not	I
5151	Deletion	Stressed	Lexical	Mono	Nasal	Pause	GARF16	1916	F	Not	I
5152	Realized	Stressed	Lexical	Mono	Nasal	Pause	GARF16	1916	F	Not	I
5156	Realized	Stressed	Lexical	Mono	Nasal	Pause	ARSM91	1991	M		I
5157	Realized	Stressed	Lexical	Mono	Nasal	Pause	ARSM91	1991	M		I
5158	Realized	Stressed	Lexical	Mono	Nasal	Pause	BEAM91	1991	M		
5159	Deletion	Stressed	Lexical	Mono	Nasal	Pause	DAVM90	1990	M		I
5160	Realized	Stressed	Lexical	Mono	Nasal	Pause	DELF91	1991	F		
5161	Realized	Stressed	Lexical	Mono	Nasal	Pause	ELLF61	1961	F		I
5162	Realized	Stressed	Lexical	Mono	Nasal	Pause	FRAM93	1993	M		
5163	Deletion	Stressed	Lexical	Mono	Nasal	Pause	GAVF93	1993	F		
5164	Realized	Stressed	Lexical	Mono	Nasal	Pause	GAVM90	1990	M	Not	I
5165	Realized	Stressed	Lexical	Mono	Nasal	Pause	GOUM91	1991	M		
5166	Deletion	Stressed	Lexical	Mono	Nasal	Pause	HAWM90	1990	M	Not	I
5167	Realized	Stressed	Lexical	Mono	Nasal	Pause	JOCF91	1991	F		
5168	Realized	Stressed	Lexical	Mono	Nasal	Pause	JOYF91	1991	F		
5169	Realized	Stressed	Lexical	Mono	Nasal	Pause	LELM91	1991	M		
5170	Realized	Stressed	Lexical	Mono	Nasal	Pause	MORF91	1991	F		
5171	Realized	Stressed	Lexical	Mono	Nasal	Pause	PHAM91	1991	M		
5172	Realized	Stressed	Lexical	Mono	Nasal	Pause	ROLF91	1991	F		
5173	Realized	Stressed	Lexical	Mono	Nasal	Pause	SILM90	1990	M	Not	I
5174	Realized	Stressed	Lexical	Mono	Nasal	Pause	TAMF91	1991	F		
5175	Realized	Stressed	Lexical	Mono	Nasal	Pause	VIKF91	1991	F		
5176	Realized	Stressed	Lexical	Past	S	Pause	GARF87	1987	F		I
5177	Realized	Stressed	Lexical	Past	S	Pause	HUNF22	1922	F		I
5234	Realized	Stressed	Lexical	Past	Other Fricative	Pause	GARF87	1987	F		I
5235	Realized	Stressed	Lexical	Past	Other Fricative	Pause	HUNF22	1922	F		I
5344	Realized	Stressed	Lexical	Semi-Weak	S	Pause	LELM91	1991	M		

5415	Realized	Stressed	Lexical	Past	S	Pause	GARF87	1987	F		
5416	Realized	Stressed	Lexical	Past	S	Pause	HUNF22	1922	F		
5418	Realized	Stressed	Lexical	Past	Nasal	Pause	GARF87	1987	F		
5419	Realized	Stressed	Lexical	Past	Nasal	Pause	HUNF22	1922	F		
5420	Realized	Stressed	Lexical	Past	Other Fricative	Pause	GARF87	1987	F		
5421	Realized	Stressed	Lexical	Past	Other Fricative	Pause	GARF87	1987	F		
5422	Realized	Stressed	Lexical	Past	Other Fricative	Pause	HUNF22	1922	F		
5432	Realized	Unstressed	Lexical	Past	Liquid	Vowel	GARF37	1937	F	Not	
5433	Realized	Unstressed	Lexical	Past	Liquid	Vowel	MARM92	1992	M		
5434	Realized	Unstressed	Lexical	Past	Liquid	Vowel	PHAM91	1991	M		
5435	Realized	Unstressed	Lexical	Past	Liquid	Vowel	ROLF91	1991	F		
5436	Realized	Unstressed	Lexical	Past	Liquid	H	GARF37	1937	F	Not	
5437	Realized	Unstressed	Lexical	Past	Liquid	H	MARM92	1992	M		
5438	Realized	Unstressed	Lexical	Past	Liquid	H	PHAM91	1991	M		
5439	Deletion	Unstressed	Lexical	Past	Liquid	H	ROLF91	1991	F		
5440	Realized	Stressed	Lexical	Mono	S	Vowel	INGM84	1984	M		
5441	Deletion	Stressed	Lexical	Mono	S	Vowel	INGM84	1984	M		
5493	Realized	Stressed	Lexical	Past	Stop	Vowel	GARF87	1987	F		
5496	Realized	Stressed	Lexical	Mono	Nasal	Pause	ELLF61	1961	F		
5497	Realized	Stressed	Lexical	Mono	Nasal	Pause	EVAF92	1992	F		
5498	Realized	Stressed	Lexical	Mono	Nasal	Pause	GARF37	1937	F	Not	
5499	Deletion	Stressed	Lexical	Mono	Nasal	Pause	GREF22	1922	F	Not	
5500	Realized	Stressed	Lexical	Mono	Nasal	Pause	HUNF22	1922	F		
5574	Realized	Stressed	Lexical	Past	Other Fricative	Vowel	GARF87	1987	F		
5575	Realized	Stressed	Lexical	Past	Liquid	Vowel	INGM84	1984	M		
5576	Realized	Stressed	Lexical	Past	Liquid	Pause	INGM84	1984	M		
5577	Realized	Stressed	Lexical	Past	Liquid	Vowel	INGM84	1984	M		
5578	Realized	Unstressed	Lexical	Mono	Nasal	Pause	GARF16	1916	F	Not	
5638	Deletion	Stressed	Lexical	Semi-Weak	Nasal	H	INGM84	1984	M		
5639	Deletion	Unstressed	Lexical	Mono	Nasal	Pause	GARF87	1987	F		
5727	Realized	Stressed	Lexical	Mono	Other Fricative	Pause	INGM84	1984	M		
5917	Realized	Stressed	Lexical	Past	Other Fricative	Vowel	GARF87	1987	F		
6062	Realized	Stressed	Lexical	Mono	Liquid	Pause	JOYF91	1991	F		
6064	Realized	Stressed	Lexical	Semi-Weak	Stop	Vowel	DONF15	1915	F	Not	
6065	Deletion	Stressed	Lexical	Mono	Liquid	Pause	GARF87	1987	F		
6066	Deletion	Stressed	Lexical	Mono	Liquid	Pause	INGM84	1984	M		
6067	Realized	Stressed	Lexical	Mono	Other Fricative	Pause	ARSM91	1991	M		
6068	Realized	Stressed	Lexical	Mono	Other Fricative	Pause	BEAM91	1991	M		
6069	Realized	Stressed	Lexical	Mono	Other Fricative	Pause	CARM91	1991	M		
6070	Realized	Stressed	Lexical	Mono	Other Fricative	Pause	DAVM90	1990	M		
6071	Realized	Stressed	Lexical	Mono	Other Fricative	Pause	DELF91	1991	F		
6072	Realized	Stressed	Lexical	Mono	Other Fricative	Pause	ELLF61	1961	F		
6073	Realized	Stressed	Lexical	Mono	Other Fricative	Pause	FRAM93	1993	M		

6074	Realized	Stressed	Lexical	Mono	Other	Fricative	Pause	GAVF93	1993	F	
6075	Realized	Stressed	Lexical	Mono	Other	Fricative	Pause	GAVM90	1990	M	Not
6076	Deletion	Stressed	Lexical	Mono	Other	Fricative	Pause	GOUM91	1991	M	
6077	Deletion	Stressed	Lexical	Mono	Other	Fricative	Pause	HAWM90	1990	M	Not
6078	Realized	Stressed	Lexical	Mono	Other	Fricative	Pause	JOCF91	1991	F	
6079	Realized	Stressed	Lexical	Mono	Other	Fricative	Pause	JOYF91	1991	F	
6080	Realized	Stressed	Lexical	Mono	Other	Fricative	Pause	LELM91	1991	M	
6081	Deletion	Stressed	Lexical	Mono	Other	Fricative	Pause	PACM94	1994	M	
6082	Realized	Stressed	Lexical	Mono	Other	Fricative	Pause	PHAM91	1991	M	
6084	Realized	Stressed	Lexical	Mono	Other	Fricative	Pause	SILM90	1990	M	Not
6086	Realized	Stressed	Lexical	Mono	Other	Fricative	Pause	VICF91	1991	F	
6087	Realized	Stressed	Lexical	Mono	Other	Fricative	Pause	VIKF91	1991	F	
6088	Realized	Stressed	Lexical	Mono		Liquid	Vowel	INGM87	1987	M	
6089	Realized	Stressed	Lexical	Mono		Nasal	Pause	ELLF61	1961	F	
6090	Realized	Stressed	Lexical	Mono		Nasal	Pause	EVAF92	1992	F	
6091	Realized	Stressed	Lexical	Mono		Nasal	Pause	GARF37	1937	F	Not
6092	Deletion	Stressed	Lexical	Mono		Nasal	Pause	GREF22	1922	F	Not
6093	Realized	Stressed	Lexical	Mono		Nasal	Pause	HUNF22	1922	F	
6094	Realized	Stressed	Lexical	Mono		Nasal	Pause	MARM92	1992	M	
6095	Deletion	Stressed	Lexical	Mono		Nasal	Pause	MARM92	1992	M	
6096	Realized	Stressed	Lexical	Mono		Nasal	Pause	PACM94	1994	M	
6097	Realized	Stressed	Lexical	Semi-Weak		Nasal	Vowel	GARF87	1987	F	
6135	Deletion	Stressed	Lexical	Mono		Liquid	Vowel	ARSM91	1991	M	
6136	Realized	Stressed	Lexical	Mono		Liquid	Vowel	BEAM91	1991	M	
6137	Realized	Stressed	Lexical	Mono		Liquid	Vowel	CARM91	1991	M	
6138	Realized	Stressed	Lexical	Mono		Liquid	Pause	CLAF52	1952	F	
6139	Realized	Stressed	Lexical	Mono		Liquid	Vowel	CONM89	1989	M	
6140	Realized	Stressed	Lexical	Mono		Liquid	Vowel	DAVM90	1990	M	
6141	Realized	Stressed	Lexical	Mono		Liquid	Vowel	DELF91	1991	F	
6142	Realized	Stressed	Lexical	Mono		Liquid	Vowel	ELLF61	1961	F	
6143	Realized	Stressed	Lexical	Mono		Liquid	Vowel	EVAF92	1992	F	
6144	Realized	Stressed	Lexical	Mono		Liquid	Vowel	FRAM93	1993	M	
6145	Realized	Stressed	Lexical	Mono		Liquid	Vowel	GARF37	1937	F	Not
6146	Realized	Stressed	Lexical	Mono		Liquid	Vowel	GAVF93	1993	F	
6147	Realized	Stressed	Lexical	Mono		Liquid	Vowel	GAVM90	1990	M	Not
6148	Realized	Stressed	Lexical	Mono		Liquid	Vowel	GOUM91	1991	M	
6149	Realized	Stressed	Lexical	Mono		Liquid	Vowel	GREF22	1922	F	Not
6150	Deletion	Stressed	Lexical	Mono		Liquid	Vowel	HAWM90	1990	M	Not
6151	Realized	Stressed	Lexical	Mono		Liquid	Pause	HOLF49	1949	F	
6152	Realized	Stressed	Lexical	Mono		Liquid	Vowel	JOCF91	1991	F	
6153	Realized	Stressed	Lexical	Mono		Liquid	Vowel	JOYF91	1991	F	
6154	Realized	Stressed	Lexical	Mono		Liquid	Vowel	LELM91	1991	M	
6155	Realized	Stressed	Lexical	Mono		Liquid	Pause	LEOF66	1966	F	

6156	Realized	Stressed	Lexical	Mono	Liquid	Vowel	MARM92	1992	M		
6157	Realized	Stressed	Lexical	Mono	Liquid	Vowel	MARM92	1992	M		
6158	Realized	Stressed	Lexical	Mono	Liquid	Vowel	MARM92	1992	M		
6159	Realized	Stressed	Lexical	Mono	Liquid	Vowel	MORF91	1991	F		
6160	Realized	Stressed	Lexical	Mono	Liquid	Vowel	PHAM91	1991	M		
6161	Realized	Stressed	Lexical	Mono	Liquid	Vowel	ROLF91	1991	F		
6162	Realized	Stressed	Lexical	Mono	Liquid	Vowel	SILM90	1990	M	Not	I
6163	Realized	Stressed	Lexical	Mono	Liquid	Vowel	TAMF91	1991	F		
6164	Realized	Stressed	Lexical	Mono	Liquid	Vowel	VICF91	1991	F		
6165	Realized	Stressed	Lexical	Mono	Liquid	Vowel	VIKF91	1991	F		
6259	Deletion	Stressed	Lexical	Mono	Other Fricative	Pause	HOLF49	1949	F		I
6328	Realized	Stressed	Lexical	Past	S	Pause	ARSM91	1991	M		I
6329	Realized	Stressed	Lexical	Past	S	Pause	BEAM91	1991	M		
6330	Realized	Stressed	Lexical	Past	S	Pause	BOUF65	1965	F		I
6331	Realized	Stressed	Lexical	Past	S	Pause	CARM91	1991	M		
6332	Realized	Stressed	Lexical	Past	S	Pause	CHIF55	1955	F		I
6333	Realized	Stressed	Lexical	Past	S	Pause	CLAF52	1952	F		I
6334	Realized	Stressed	Lexical	Past	S	Pause	CONM89	1989	M		I
6335	Realized	Stressed	Lexical	Past	S	Pause	DELF91	1991	F		
6336	Realized	Stressed	Lexical	Past	S	Pause	DONM53	1953	M		I
6337	Realized	Stressed	Lexical	Past	S	Pause	DONM58	1958	M	Not	I
6338	Realized	Stressed	Lexical	Past	S	Pause	DOUF46	1946	F		I
6339	Realized	Stressed	Lexical	Past	S	Pause	ELLF29	1929	F	Not	I
6340	Realized	Stressed	Lexical	Past	S	Pause	ELLF61	1961	F		I
6341	Deletion	Stressed	Lexical	Past	S	Pause	EVAF92	1992	F		
6342	Realized	Stressed	Lexical	Past	S	Pause	FRAM93	1993	M		
6343	Realized	Stressed	Lexical	Past	S	Pause	GARF37	1937	F	Not	I
6344	Realized	Stressed	Lexical	Past	S	Pause	GARM42	1942	M	Not	I
6345	Realized	Stressed	Lexical	Past	S	Pause	GAVF93	1993	F		
6346	Deletion	Stressed	Lexical	Past	S	Pause	GAVM90	1990	M	Not	I
6347	Realized	Stressed	Lexical	Past	S	Pause	GOUM91	1991	M		
6348	Realized	Stressed	Lexical	Past	S	Pause	GREF22	1922	F	Not	I
6349	Realized	Stressed	Lexical	Past	S	Pause	GREM45	1945	M	Not	I
6350	Realized	Stressed	Lexical	Past	S	Pause	HAWM90	1990	M	Not	I
6351	Realized	Stressed	Lexical	Past	S	Pause	HOLF49	1949	F		I
6352	Realized	Stressed	Lexical	Past	S	Pause	HOLM52	1952	M	Not	I
6353	Realized	Stressed	Lexical	Past	S	Pause	INGM84	1984	M		I
6354	Realized	Stressed	Lexical	Past	S	Pause	INGM87	1987	M		I
6355	Realized	Stressed	Lexical	Past	S	Pause	JOCF91	1991	F		
6356	Realized	Stressed	Lexical	Past	S	Pause	JOYF91	1991	F		
6357	Realized	Stressed	Lexical	Past	S	Pause	KAYF29	1929	F	Not	I
6358	Deletion	Stressed	Lexical	Past	S	Pause	KAYM29	1929	M	Not	I
6359	Realized	Stressed	Lexical	Past	S	Pause	LATF53	1953	F		I

6360	Realized	Stressed	Lexical	Past		S	Pause	LEOF66	1966	F	
6361	Deletion	Stressed	Lexical	Past		S	Pause	MARM92	1992	M	
6362	Realized	Stressed	Lexical	Past		S	Pause	MOFM55	1955	M	
6363	Realized	Stressed	Lexical	Past		S	Pause	MORF91	1991	F	
6364	Realized	Stressed	Lexical	Past		S	Pause	NATF84	1984	F	
6365	Realized	Stressed	Lexical	Past		S	Pause	NEIF49	1949	F	
6366	Realized	Stressed	Lexical	Past		S	Pause	PEIF57	1957	F	
6367	Realized	Stressed	Lexical	Past		S	Pause	PHAM91	1991	M	
6368	Realized	Stressed	Lexical	Past		S	Pause	ROBM64	1964	M	
6369	Realized	Stressed	Lexical	Past		S	Pause	ROLF91	1991	F	
6370	Realized	Stressed	Lexical	Past		S	Pause	RUDF73	1973	F	
6371	Realized	Stressed	Lexical	Past		S	Pause	SAMF61	1961	F	
6372	Deletion	Stressed	Lexical	Past		S	Pause	SILM90	1990	M	Not
6373	Realized	Stressed	Lexical	Past		S	Pause	SMIF58	1958	F	Not
6374	Realized	Stressed	Lexical	Past		S	Pause	SMIM61	1961	M	Not
6375	Realized	Stressed	Lexical	Past		S	Pause	STEF99	1999	F	
6376	Realized	Stressed	Lexical	Past		S	Pause	STEM42	1942	M	Not
6377	Realized	Stressed	Lexical	Past		S	Pause	TAMF91	1991	F	
6378	Deletion	Stressed	Lexical	Past		S	Pause	VICF91	1991	F	
6379	Deletion	Stressed	Lexical	Past		S	Pause	VIKF91	1991	F	
6385	Deletion	Unstressed	Lexical	Mono		Nasal	Pause	INGM84	1984	M	
6386	Deletion	Unstressed	Lexical	Mono		Nasal	Vowel	INGM84	1984	M	
6409	Realized	Unstressed	Lexical	Mono		Liquid	Pause	MARM92	1992	M	
6414	Realized	Stressed	Lexical	Mono		S	Pause	FRAM93	1993	M	
6415	Realized	Stressed	Lexical	Mono		S	Pause	LEOF66	1966	F	
6663	Realized	Stressed	Lexical	Mono		Liquid	H	RUDF73	1973	F	
6680	Realized	Stressed	Lexical	Mono		Liquid	Pause	GARF87	1987	F	
6681	Deletion	Stressed	Lexical	Mono		Liquid	Pause	HUNF22	1922	F	
6684	Deletion	Unstressed	Lexical	Mono		Nasal	Pause	ROLF91	1991	F	
6808	Deletion	Stressed	Lexical	Mono		Nasal	Vowel	INGM84	1984	M	
6810	Realized	Stressed	Lexical	Past		Liquid	H	GARF37	1937	F	Not
6811	Deletion	Stressed	Lexical	Past		Liquid	H	MARM92	1992	M	
6812	Deletion	Stressed	Lexical	Past		Liquid	H	PHAM91	1991	M	
6813	Deletion	Stressed	Lexical	Past		Liquid	H	ROLF91	1991	F	
6814	Realized	Stressed	Lexical	Past	Other	Fricative	H	ARSM91	1991	M	
6815	Realized	Stressed	Lexical	Past	Other	Fricative	H	BEAM91	1991	M	
6816	Realized	Stressed	Lexical	Past	Other	Fricative	H	BOUF65	1965	F	
6817	Realized	Stressed	Lexical	Past	Other	Fricative	H	CARM91	1991	M	
6818	Realized	Stressed	Lexical	Past	Other	Fricative	H	CHIF55	1955	F	
6819	Realized	Stressed	Lexical	Past	Other	Fricative	H	CLAF52	1952	F	
6820	Realized	Stressed	Lexical	Past	Other	Fricative	H	CONM89	1989	M	
6821	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	DELF91	1991	F	
6822	Realized	Stressed	Lexical	Past	Other	Fricative	H	DONM53	1953	M	

6823	Realized	Stressed	Lexical	Past	Other	Fricative	H	DONM58	1958	M	Not
6824	Realized	Stressed	Lexical	Past	Other	Fricative	H	DOUF46	1946	F	
6825	Realized	Stressed	Lexical	Past	Other	Fricative	H	ELLF29	1929	F	Not
6826	Realized	Stressed	Lexical	Past	Other	Fricative	H	EVAF92	1992	F	
6827	Realized	Stressed	Lexical	Past	Other	Fricative	H	FRAM93	1993	M	
6828	Realized	Stressed	Lexical	Past	Other	Fricative	H	GARF37	1937	F	Not
6829	Realized	Stressed	Lexical	Past	Other	Fricative	H	GARM42	1942	M	Not
6830	Realized	Stressed	Lexical	Past	Other	Fricative	H	GAVF93	1993	F	
6831	Realized	Stressed	Lexical	Past	Other	Fricative	H	GAVM90	1990	M	Not
6832	Realized	Stressed	Lexical	Past	Other	Fricative	H	GOUM91	1991	M	
6833	Realized	Stressed	Lexical	Past	Other	Fricative	Pause	GREF22	1922	F	Not
6834	Realized	Stressed	Lexical	Past	Other	Fricative	H	GREM45	1945	M	Not
6835	Realized	Stressed	Lexical	Past	Other	Fricative	H	HAWM90	1990	M	Not
6836	Realized	Stressed	Lexical	Past	Other	Fricative	H	HOLF49	1949	F	
6837	Realized	Stressed	Lexical	Past	Other	Fricative	H	HOLM52	1952	M	Not
6838	Realized	Stressed	Lexical	Past	Other	Fricative	H	INGM84	1984	M	
6839	Deletion	Stressed	Lexical	Past	Other	Fricative	Vowel	INGM84	1984	M	
6840	Realized	Stressed	Lexical	Past	Other	Fricative	H	INGM87	1987	M	
6841	Realized	Stressed	Lexical	Past	Other	Fricative	H	JOCF91	1991	F	
6842	Realized	Stressed	Lexical	Past	Other	Fricative	H	JOYF91	1991	F	
6843	Realized	Stressed	Lexical	Past	Other	Fricative	H	KAYF29	1929	F	Not
6844	Realized	Stressed	Lexical	Past	Other	Fricative	H	KAYM29	1929	M	Not
6845	Realized	Stressed	Lexical	Past	Other	Fricative	H	LATF53	1953	F	
6846	Realized	Stressed	Lexical	Past	Other	Fricative	H	LEOF66	1966	F	
6847	Realized	Stressed	Lexical	Past	Other	Fricative	H	MARM92	1992	M	
6848	Realized	Stressed	Lexical	Past	Other	Fricative	H	MOFM55	1955	M	
6849	Realized	Stressed	Lexical	Past	Other	Fricative	H	MORF91	1991	F	
6850	Deletion	Stressed	Lexical	Past	Other	Fricative	H	NATF84	1984	F	
6851	Deletion	Stressed	Lexical	Past	Other	Fricative	H	NEIF49	1949	F	
6852	Realized	Stressed	Lexical	Past	Other	Fricative	H	PEIF57	1957	F	
6853	Realized	Stressed	Lexical	Past	Other	Fricative	H	PHAM91	1991	M	
6854	Realized	Stressed	Lexical	Past	Other	Fricative	H	ROBM64	1964	M	
6855	Realized	Stressed	Lexical	Past	Other	Fricative	H	ROLF91	1991	F	
6856	Realized	Stressed	Lexical	Past	Other	Fricative	H	RUDF73	1973	F	
6857	Realized	Stressed	Lexical	Past	Other	Fricative	H	SAMF61	1961	F	
6858	Realized	Stressed	Lexical	Past	Other	Fricative	H	SILM90	1990	M	Not
6859	Realized	Stressed	Lexical	Past	Other	Fricative	H	SMIF58	1958	F	Not
6860	Realized	Stressed	Lexical	Past	Other	Fricative	H	SMIM61	1961	M	Not
6861	Realized	Stressed	Lexical	Past	Other	Fricative	H	STEF99	1999	F	
6862	Realized	Stressed	Lexical	Past	Other	Fricative	H	STEM42	1942	M	Not
6863	Deletion	Stressed	Lexical	Past	Other	Fricative	H	TAMF91	1991	F	
6864	Deletion	Stressed	Lexical	Past	Other	Fricative	H	VICF91	1991	F	
6865	Realized	Stressed	Lexical	Past	Other	Fricative	H	VIKF91	1991	F	

```
6866 Deletion   Stressed Function       Mono          Nasal         H  DONF15 1915   F Not
6867 Realized   Stressed Function       Mono          Nasal     Pause  DONF15 1915   F Not
6868 Deletion Unstressed  Lexical       Mono         Liquid     Pause  INGM84 1984   M
6870 Deletion Unstressed  Lexical       Mono          Nasal     Vowel  MARM92 1992   M
6871 Deletion   Stressed  Lexical       Mono         Liquid     Pause  INGM84 1984   M
6872 Realized   Stressed  Lexical       Mono         Liquid     Pause  INGM87 1987   M
6875 Realized   Stressed  Lexical  Semi-Weak          Nasal     Vowel  GARF16 1916   F Not
6876 Realized   Stressed  Lexical  Semi-Weak          Nasal     Vowel  GARF16 1916   F Not
6877 Deletion   Stressed  Lexical  Semi-Weak          Nasal     Pause  GARF16 1916   F Not
6878 Deletion   Stressed  Lexical  Semi-Weak          Nasal     Pause  GARF16 1916   F Not
6881 Realized   Stressed  Lexical  Semi-Weak          Nasal     Pause  HUNF22 1922   F
6882 Realized   Stressed Function       Mono          Nasal     Vowel  DONF15 1915   F Not
6883 Realized   Stressed  Lexical       Mono             S     Pause  GARF87 1987   F
6884 Realized   Stressed  Lexical       Mono             S     Pause  HUNF22 1922   F
6885 Realized   Stressed  Lexical       Mono             S     Pause  MARM92 1992   M
6886 Realized Unstressed  Lexical       Mono          Nasal     Pause  GARF87 1987   F
6898 Realized   Stressed  Lexical       Mono         Liquid     Pause  GARF87 1987   F
6899 Realized   Stressed  Lexical       Past           Stop         H  GARF37 1937   F Not
6900 Realized   Stressed  Lexical       Past           Stop         H  MARM92 1992   M
6901 Realized   Stressed  Lexical       Past           Stop         H  PHAM91 1991   M
6902 Realized   Stressed  Lexical       Past           Stop         H  PHAM91 1991   M
6903 Realized   Stressed  Lexical       Past           Stop         H  ROLF91 1991   F
6918 Realized   Stressed  Lexical       Mono         Liquid     Vowel  GARF87 1987   F
6919 Realized   Stressed  Lexical       Mono         Liquid     Vowel  GARF87 1987   F
6920 Realized   Stressed  Lexical       Mono         Liquid     Pause  GARF87 1987   F
6921 Realized   Stressed  Lexical       Past           Stop     Vowel  DONF15 1915   F Not
6983 Realized   Stressed  Lexical       Mono          Nasal     Pause  PACM94 1994   M
6984 Deletion   Stressed  Lexical       Mono             S     Pause  INGM84 1984   M
6985 Realized   Stressed  Lexical       Mono             S     Vowel  INGM84 1984   M
```

```
as_tibble(td)
```

```
# A tibble: 1,189 x 17
   Dep.Var  Stress   Category Morph.Type Before After     Speaker   YOB Sex   Education    Jo
   <chr>    <chr>    <chr>    <chr>      <fct>  <chr>     <chr>   <int> <chr> <chr>        <c
 1 Realized Stressed Lexical  Mono       Stop   Consonant BOUF65   1965 F     Educated     Wh
 2 Deletion Stressed Lexical  Mono       Stop   Consonant CHIF55   1955 F     Educated     Wh
 3 Deletion Stressed Lexical  Mono       Stop   Consonant CHIF55   1955 F     Educated     Wh
 4 Deletion Stressed Lexical  Mono       Stop   Consonant CLAF52   1952 F     Educated     Se
 5 Realized Stressed Lexical  Mono       Stop   Consonant DONM53   1953 M     Educated     Se
 6 Deletion Stressed Lexical  Mono       Stop   Consonant DONM58   1958 M     Not Educated Se
```

```
 7 Deletion Stressed Lexical  Mono       Stop   Consonant DOUF46   1946 F     Educated     Se
 8 Deletion Stressed Lexical  Mono       Stop   Consonant GARM42   1942 M     Not Educated Bl
 9 Deletion Stressed Lexical  Mono       Stop   Consonant GREM45   1945 M     Not Educated Bl
10 Deletion Stressed Lexical  Mono       Stop   Consonant HOLF49   1949 F     Educated     Se
# ... with 1,179 more rows
# i Use `print(n = ...)` to see more rows
```

Notice that the *tibble* lists the dimensions of the tibble at the top, as well as the class of each of the columns. It also only displays the first 10 rows. You'll also notice that the row numbers have reset when we converted `td` to a *tibble*. If we want to view the entire tibble, we can use the `print()` function and specify the `n=` plus the number of rows we want to see, including all rows (`n=Inf`). You can see below how the pipe operator makes doing this pretty easy.

```
# Embedding functions
print(as_tibble(td), n = 20)
```

The above produces the same as the following:

```
# Using %>% to pass the results from the first function to the second function
as_tibble(td) %>%
    print(n = 20)
```

```
# A tibble: 1,189 x 17
   Dep.Var  Stress   Category Morph.Type Before After     Speaker   YOB Sex   Education    Jo
   <chr>    <chr>    <chr>    <chr>      <fct>  <chr>     <chr>   <int> <chr> <chr>        <c
 1 Realized Stressed Lexical  Mono       Stop   Consonant BOUF65   1965 F     Educated     Wh
 2 Deletion Stressed Lexical  Mono       Stop   Consonant CHIF55   1955 F     Educated     Wh
 3 Deletion Stressed Lexical  Mono       Stop   Consonant CHIF55   1955 F     Educated     Wh
 4 Deletion Stressed Lexical  Mono       Stop   Consonant CLAF52   1952 F     Educated     Se
 5 Realized Stressed Lexical  Mono       Stop   Consonant DONM53   1953 M     Educated     Se
 6 Deletion Stressed Lexical  Mono       Stop   Consonant DONM58   1958 M     Not Educated Se
 7 Deletion Stressed Lexical  Mono       Stop   Consonant DOUF46   1946 F     Educated     Se
 8 Deletion Stressed Lexical  Mono       Stop   Consonant GARM42   1942 M     Not Educated Bl
 9 Deletion Stressed Lexical  Mono       Stop   Consonant GREM45   1945 M     Not Educated Bl
10 Deletion Stressed Lexical  Mono       Stop   Consonant HOLF49   1949 F     Educated     Se
11 Deletion Stressed Lexical  Mono       Stop   Consonant HOLM52   1952 M     Not Educated Bl
12 Deletion Stressed Lexical  Mono       Stop   Consonant INGM84   1984 M     Educated     Se
13 Deletion Stressed Lexical  Mono       Stop   Consonant INGM87   1987 M     Educated     Se
14 Deletion Stressed Lexical  Mono       Stop   Consonant KAYF29   1929 F     Not Educated Se
15 Deletion Stressed Lexical  Mono       Stop   Consonant KAYM29   1929 M     Not Educated Bl
16 Realized Stressed Lexical  Mono       Stop   Consonant LATF53   1953 F     Educated     Se
```

```
17 Realized Stressed Lexical  Mono       Stop   Consonant LEOF66   1966 F     Educated     Wh
18 Deletion Stressed Lexical  Mono       Stop   Consonant MOFM55   1955 M     Educated     Wh
19 Deletion Stressed Lexical  Mono       Stop   Consonant NATF84   1984 F     Educated     So
20 Deletion Stressed Lexical  Mono       Stop   Consonant NEIF49   1949 F     Educated     So
# ... with 1,169 more rows
# i Use `print(n = ...)` to see more rows
```

Getting a `glimpse()`

Another useful addition to data exploration is the `glimpse()` function from the `pilllar` package and re-exported by `dplyr`. The `glipmpse()` function is like a cross between `print()` (which shows the data) and `str()` (which shows the structure of the data). I use `glimpse()` almost as frequently as I use `summary()`. In fact, if you have very wide data, i.e., with lots of columns, `glimpse()` may prove more useful than `summary()` for getting a quick snapshot of your data. `glimpse()` shows the number of rows, the number of columns, the name of each column, its class, and however many values in each column as will fit horizontally in the console.

```
glimpse(td)
```

```
Rows: 1,189
Columns: 17
$ Dep.Var      <chr> "Realized", "Deletion", "Deletion", "Deletion", "Realized~
$ Stress       <chr> "Stressed", "Stressed", "Stressed", "Stressed", "Stressed~
$ Category     <chr> "Lexical", "Lexical", "Lexical", "Lexical", "Lexical", "L~
$ Morph.Type   <chr> "Mono", "Mono", "Mono", "Mono", "Mono", "Mono", "Mono", "~
$ Before       <fct> Stop, Stop, Stop, Stop, Stop, Stop, Stop, Stop, Stop, Sto~
$ After        <chr> "Consonant", "Consonant", "Consonant", "Consonant", "Cons~
$ Speaker      <chr> "BOUF65", "CHIF55", "CHIF55", "CLAF52", "DONM53", "DONM58~
$ YOB          <int> 1965, 1955, 1955, 1952, 1953, 1958, 1946, 1942, 1945, 194~
$ Sex          <chr> "F", "F", "F", "F", "M", "M", "F", "M", "M", "F", "M", "M~
$ Education    <chr> "Educated", "Educated", "Educated", "Educated", "Educated~
$ Job          <chr> "White", "White", "White", "Service", "Service", "Service~
$ After.New    <fct> Consonant, Consonant, Consonant, Consonant, Consonant, Co~
$ Center.Age   <dbl> -4.446594, -14.446594, -14.446594, -17.446594, -16.446594~
$ Age.Group    <fct> Middle, Middle, Middle, Middle, Middle, Middle, Middle, O~
$ Age_Sex      <fct> Middle_F, Middle_F, Middle_F, Middle_F, Middle_M, Middle_~
$ Phoneme      <fct> t, t, t, t, t, t, t, t, t, t, t, t, t, t, t, t, t, t, t, ~
$ Dep.Var.Full <fct> T, Deletion, Deletion, Deletion, T, Deletion, Deletion, D~
```

Manipulating data with `dplyr`

The `dplyr` package is great for manipulating data in a data frame/tibble. Some common things that `diplyr` can do include:

Function	Description
`mutate()`	add new variables or modify existing ones
`select()`	select variables
`filter()`	filter
`summarize()`	summarize/reduce
`arrange()`	sort
`group_by()`	group
`rename()`	rename columns

Lets redo all our data manipulation of `td` but with `dplyr` and its pipe `%>%` operator

```
# Read in token file
td <- read.delim("Data/deletiondata.txt")
```

or...

```
# Read in token file
td <- read.delim("https://www.dropbox.com/s/jxlfuogea3lx2pu/deletiondata.txt?dl=1")
```

then...

```
# Subset data to remove previous 'Vowel' contexts
td <- td %>% # pass td to next function
      filter(Before != "Vowel") # filter td to include everything that is not "Vowel" in t
# Re-code 'H' to be 'Consonant' in a new column
td <- td %>% # pass td to next function
      mutate(After.New = recode(After, "H" = "Consonant")) # create a new column called Af
# Center Year of Birth
td <- td %>% # pass td to next function
     mutate(Center.Age = as.numeric(scale(YOB, scale = FALSE))) # create a new column call
# Create Age.Group
td <- td %>% # pass td to next function
      mutate(Age.Group = cut(YOB, breaks = c(-Inf, 1944, 1979, Inf),
                                  labels = c("Old", "Middle", "Young"))) # cut the YOB int
```

Before we continue, a note about the `cut()` function. The `breaks=` option is a concatenated list of boundaries. It should start and end with `-Inf` and `Inf` (negative and positive infinity) as these will be the lower and upper bounds. The other values are the boundaries or cut-off points. By default `cut()` has the setting `right=TRUE`, which means the boundary values are considered the last value in a group (e.g., rightmost value). Above, this means `1944` will be the highest value in the `Old` category and `1979` will the the highest value in the `Middle` category. To reverse this you can add the option `right=FALSE` in which case 1944 would be the lowest value in the `Middle` category (e.g. leftmost value) and 1979 would be the lowest value in the `Young` category.

Let's continue.

```
# Combine Age and Sex

td <-td %>% # pass td to next function
     unite("Age_Sex", Age.Group:Sex, sep= "_", remove = FALSE) # using the unite() functio

# Break Phoneme.Dep.Var into two columns
td <-td %>% # pass td to next function
 mutate(Phoneme = sub("^(.)(--.*)$", "\\1",
        Phoneme.Dep.Var),
        Dep.Var.Full = sub("^(.--)(.*)$", "\\2",
        Phoneme.Dep.Var),
        Phoneme.Dep.Var = NULL) # Same as before, but with td passed to mutate() by the %>
```

At this point we have done everything except partition the data and re-center YOB in the partitioned data frames. You may ask, "How is this better?". Well, the answer is that because all these modifications feed into one another, we can actually include them all together in one serialized operation. Behold!

All of the above code can be simplified as follows:

or...

```
# Read in token file
td <- read.delim("https://www.dropbox.com/s/jxlfuogea3lx2pu/deletiondata.txt?dl=1")
```

then...

```
# Subset data to remove previous 'Vowel' contexts, then modify several columns
# with mutate, then convert any character column to a factor column
td <- td %>%
    filter(Before != "Vowel") %>%
```

```
    mutate(After.New = recode(After, H = "Consonant"), Center.Age = as.numeric(scale(YOB,
        scale = FALSE)), Age.Group = cut(YOB, breaks = c(-Inf, 1944, 1979, Inf),
        labels = c("Old", "Middle", "Young")), Phoneme = sub("^(.)(--.*)$", "\\1",
        Phoneme.Dep.Var), Dep.Var.Full = sub("^(.--)(.*)$", "\\2", Phoneme.Dep.Var),
        Phoneme.Dep.Var = NULL) %>%
    mutate_if(is.character, as.factor)
```

Now, doesn't the above look so much cleaner and easier to follow?

To partition the data we still need separate functions. Also, remember to re-centre any continuous variables after partioning.

```
td.young <- td %>%
    filter(Age.Group == "Young") %>%
    mutate(Center.Age = as.numeric(scale(YOB, scale = FALSE)))

td.middle <- td %>%
    filter(Age.Group == "Middle") %>%
    mutate(Center.Age = as.numeric(scale(YOB, scale = FALSE)))

td.old <- td %>%
    filter(Age.Group == "Old") %>%
    mutate(Center.Age = as.numeric(scale(YOB, scale = FALSE)))
```