Appendix.

MacArthur-Bates Communicative Development Inventory: Words and Sentences (NZ Adaptation): percentiles for expressive vocabulary and grammatical complexity

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Children's raw scores from the New Zealand adaptation of the MacArthur-Bates Communicative Development Inventory: Words and Sentences (NZ CDI:WS) can be converted to percentile scores using the tables in this document. Percentile scores for the Vocabulary Checklist (Part I, Section A) and the Complexity (Part II, Section E) sections are presented for all children together and separately for girls and boys. (The current document does not contain information regarding Part I, Section B or Part II, Sections A–D.)

To determine a percentile score in any of the tables, (1) calculate the child's chronological age (unadjusted for prematurity) by rounding down to the nearest whole number and locating it in the left-hand column of the table; (2) read across the age row from left-to-right to find the tabled raw score closest in value to the child's raw score; and (3) read up the column to determine the percentile score. Regarding the first point, it is important to calculate the child's chronological age in the same way as was done for children in the normative study. For example, if a child was born on August 1, 2016 and the CDI was completed on August 20, 2018, the child's age would be 24 months for the purpose of using the tables. Note that this method of calculating chronological age differs slightly from that used by some standardized, norm-referenced tests (e.g., Peabody Picture Vocabulary Test).

The data in the following tables were based on 2,581 English-speaking children living in New Zealand between 2012–15. Children who spoke an additional language (e.g., te reo Māori) were also included, but similar tables based on their other languages is not presented since that was beyond the scope of the project. A separate manuscript currently being prepared will contain further information about the full research project. Please note that the percentile scores presented in this Apendix are provisional and that

minor changes may be made to the final document. This Appendix and the NZ CDI:WS can be downloaded and used, without charge, from the website listed in the citation below.

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Table 1: Conditional percentile scores for NZ CDI:WS vocabulary—girls and boys combined.

	Percentile score																		
Age	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
16	6	10	14	18	23	27	30	34	37	43	51	58	64	75	89	102	124	145	207
17	7	11	17	22	26	32	37	42	48	56	66	74	85	97	117	136	165	198	257
18	10	15	21	28	33	43	51	58	68	78	91	100	116	130	153	177	213	254	310
19	14	20	26	36	45	59	71	81	96	109	127	137	155	174	197	225	268	312	367
20	19	27	36	50	64	82	98	112	133	149	169	185	203	228	249	281	329	372	426
21	25	37	52	69	89	110	131	150	177	195	213	239	256	283	307	341	386	428	480
22	31	50	73	95	120	145	170	193	222	241	259	290	308	335	361	395	436	477	526
23	36	65	100	127	158	185	212	238	267	288	306	339	359	385	411	444	480	519	564
24	40	83	132	166	202	232	256	284	314	336	355	385	410	433	456	487	518	554	595
25	44	103	165	208	246	278	302	332	361	384	406	428	455	478	496	524	551	583	618
26	47	125	195	246	285	319	347	379	407	432	455	468	494	517	531	555	578	605	634
27	50	149	223	280	319	356	389	419	446	474	494	504	528	549	561	580	600	620	643
28	51	172	248	309	348	387	428	454	477	505	523	536	556	574	585	599	617	629	644
29	52	196	271	333	373	415	465	483	501	527	542	564	578	592	604	613	628	637	648
30	53	220	292	353	392	437	499	506	518	539	550	589	594	603	617	620	634	650	657

Note:
Age is in months.

Table 2: Conditional percentile scores for NZ CDI:WS vocabulary—girls.

	Percentile score																		
Age	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
16	8	14	18	20	23	27	30	37	43	56	61	68	81	96	103	116	135	159	231
17	10	18	23	29	37	42	48	52	64	76	85	94	110	128	140	164	195	226	293
18	13	25	32	42	54	62	71	77	92	104	116	129	145	165	182	213	253	288	350
19	19	35	45	59	75	87	99	111	127	140	155	172	186	206	229	264	308	345	403
20	26	48	63	80	100	117	132	153	167	184	200	220	233	252	280	316	360	397	451
21	35	64	84	106	128	149	170	196	209	230	248	268	285	303	334	366	408	444	494
22	46	83	109	136	160	184	212	239	252	276	295	316	336	353	384	412	451	486	531
23	59	106	139	170	196	222	254	283	297	323	342	364	384	400	430	454	490	523	564
24	75	133	172	208	235	264	296	327	343	369	389	411	428	446	471	492	525	555	591
25	94	163	209	249	276	306	337	371	391	414	433	454	468	488	508	527	555	582	613
26	116	196	247	288	316	349	377	413	436	455	473	493	505	525	541	557	581	603	630
27	141	232	287	325	356	392	417	453	475	493	510	528	539	557	570	584	602	620	641
28	169	272	328	360	395	436	457	489	509	529	544	558	568	584	594	607	620	632	647
29	200	316	371	394	434	481	496	522	537	561	574	584	594	607	614	626	636	643	650
30	234	363	416	426	473	526	535	553	558	590	601	606	617	625	629	641	650	652	654

Note:
Age is in months.

Table 3: Conditional percentile scores for NZ CDI:WS vocabulary—boys.

	Percentile score																		
Age	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
16	5	9	11	14	18	23	26	29	31	35	40	45	48	54	62	72	81	99	138
17	6	10	12	15	20	25	28	33	37	42	49	58	67	73	84	101	123	163	222
18	8	12	15	19	24	30	34	43	50	57	68	80	93	102	115	139	171	226	298
19	11	16	20	24	31	39	46	60	71	81	96	111	127	141	156	187	225	288	366
20	15	22	28	34	45	56	68	86	99	113	132	150	169	189	206	244	285	348	427
21	19	28	38	49	66	81	99	120	136	154	177	198	216	247	265	309	350	407	480
22	23	36	52	69	93	114	138	161	178	200	225	248	265	306	327	370	410	462	526
23	27	45	69	93	125	151	180	205	224	248	273	298	315	362	385	425	462	509	564
24	30	54	88	123	159	191	221	250	272	297	321	349	367	415	438	471	506	548	595
25	33	62	110	151	197	233	262	297	323	347	370	400	418	461	483	511	543	580	618
26	35	69	132	178	235	273	300	343	372	395	418	446	463	500	520	543	571	604	634
27	37	74	149	203	266	304	333	382	414	436	459	483	498	530	549	568	592	620	642
28	38	78	161	227	288	327	359	414	449	468	489	510	524	553	569	586	605	628	644
29	39	81	169	250	303	342	379	438	478	491	508	527	541	567	582	596	611	632	648
30	39	82	173	271	309	349	392	455	500	505	517	535	548	574	588	601	614	634	657

Note:
Age is in months.

Table 4: Conditional percentile scores for NZ CDI:WS complexity—girls and boys combined.

	Percentile score																		
Age	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	4	6
19	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	4	6	9
20	0	0	0	0	0	0	0	0	0	0	1	1	2	2	3	4	6	9	13
21	0	0	0	0	0	0	0	0	1	1	2	2	4	4	5	7	9	12	17
22	0	0	0	0	0	0	1	1	2	2	4	4	6	7	8	10	13	17	22
23	0	0	0	0	0	1	2	2	4	5	6	7	9	10	12	14	17	21	27
24	0	0	0	0	1	2	3	4	6	7	9	10	12	14	16	19	22	26	31
25	0	0	0	1	3	4	5	7	9	11	13	14	16	18	21	24	26	30	34
26	0	0	1	3	5	6	8	10	12	14	16	18	21	23	26	28	30	33	36
27	0	0	2	5	7	8	11	13	15	18	20	22	25	27	30	31	33	35	37
28	0	0	2	6	8	10	14	17	19	22	24	26	29	30	33	34	35	36	37
29	0	0	2	7	9	13	18	21	23	26	28	30	32	33	35	36	36	37	37
30	0	0	2	8	10	15	22	25	27	30	32	33	34	35	36	37	37	37	37

Note:
Age is in months.

Table 5: Conditional percentile scores for NZ CDI:WS complexity—girls.

	Percentile score																		
Age	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	4
18	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3	5	7
19	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	4	5	7	10
20	0	0	0	0	0	0	0	0	0	1	1	2	2	4	4	6	8	10	14
21	0	0	0	0	0	0	1	1	1	2	3	4	4	6	7	9	11	14	18
22	0	0	0	0	0	1	2	2	3	4	5	6	7	9	10	12	15	18	23
23	0	0	0	1	1	2	3	4	5	7	8	9	10	12	14	16	19	23	28
24	0	0	1	2	2	4	5	6	8	9	11	12	14	16	19	21	24	28	31
25	0	0	1	3	4	6	7	9	11	13	15	16	18	20	23	26	28	31	34
26	0	1	3	5	6	9	10	12	15	17	19	21	23	25	27	30	31	34	36
27	0	2	5	7	9	12	14	16	19	21	24	25	27	29	30	33	34	36	37
28	0	3	7	9	13	16	18	20	23	25	28	29	31	32	33	35	36	37	37
29	0	4	10	12	17	20	23	25	27	29	31	32	34	35	35	36	37	37	37
30	0	5	13	15	21	25	28	30	31	33	34	35	36	36	37	37	37	37	37

Note:
Age is in months.

Table 6: Conditional percentile scores for NZ CDI:WS complexity—boys.

	Percentile score																		
Age	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	4
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	4	8
20	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3	4	7	12
21	0	0	0	0	0	0	0	0	0	1	1	1	2	3	4	5	7	10	17
22	0	0	0	0	0	0	0	0	1	2	2	3	4	6	7	8	10	14	22
23	0	0	0	0	0	0	1	1	2	3	4	5	6	8	10	12	14	18	26
24	0	0	0	0	0	1	2	3	4	5	7	8	9	12	14	17	19	23	30
25	0	0	0	0	1	3	4	5	6	8	10	11	13	16	19	21	24	28	33
26	0	0	0	1	2	5	6	7	9	11	13	15	17	20	23	26	28	31	35
27	0	0	0	1	3	6	8	9	12	14	16	19	21	23	27	30	31	34	36
28	0	0	0	2	4	8	9	11	15	18	20	23	25	27	30	33	34	36	37
29	0	0	0	2	5	8	10	12	19	22	23	27	28	30	33	35	36	37	37
30	0	0	0	2	5	9	11	12	23	26	26	31	32	33	34	37	37	37	38

Note:
Age is in months.