APPENDIX

This article is part of the issue "Vocabulary of 2-Year-Olds Learning English and an Additional Language: Norms and Effects of Linguistic Distance" Floccia, Sambrook, Delle Luche, Kwok, Goslin, White, Cattani, Sullivan, Abbot-Smith, Krott, Mills, Rowland, Gervain, and Plunkett (Issue Authors). For a full listing of articles in this issue, see: http://onlinelibrary.wiley.com/doi/10.1111/mono.v83.1/issuetoc.

Appendix 1: Additional Language CDIs References

Bengali

Hamadani, J. D., Baker-Henningham, H., Tofail, F., Mehrin, F., Huda, S. N., & Grantham-McGregor, S. M. (2010). Validity and reliability of mothers' reports of language development in 1-year-old children in a large-scale survey in Bangladesh. *Food and Nutrition Bulletin*, **31**(2), S198–S206.

Cantonese (Hong Kong) and Mandarin (Beijing)

Tardiff, T., & Fletcher, P. (2008). *Chinese Communicative Development Inventories: User's guide and manual*. Beijing, China: Peking University Medical Press.

Dutch

Zink, I, & Lejaegere, M. (2002). N-CDIs: Lijsten voor Communicatieve Ontwikkeling. Aanpassing en hernormering van de MacArthur CDIs van

DOI: 10.1111/mono.12353

Fenson et al. Acco, Leuven (Belgium)/Leusden(Netherlands). (A CDI user's manual with normative and validity data).

French

Kern, S., & Gayraud, G. (2010). Inventaire Français du Développement Communicatif (IFDC), Grenoble, La Cigale, 978-2-912457-91-2.

German

FRAKIS: Szagun, G., Stumper, B., & Schramm, A. S. (2009). Fragebogen zur frühkindlichen Sprachentwicklung (FRAKIS) und FRAKIS-K (Kurzform). Frankfurt: Pearson Assessment. http://www.pearsonassessment.de

Greek

Personal communication from Prof. Demetra Kati, University of Athens, May 2014.

Italian

Caselli, M. C., & Casadio, P. (1995). *Il primo vocabolario del bambino: Guida all'uso del questionario MacArthur*. Milan, Italy: Franco Angeli.

Polish

Smoczyńska, M. (1999). Inwentarz Rozwoju Mowy i Komunikacji: Słowa i Zdania [Polish Adaptation of The MacArthur-Bates Communicative Development Inventory: Words and Sentences]. Unpublished material. Krakow: Jagiellonian University.

Portuguese

Frota, S., Butler, J., Correia, S., Severino, C., Vicente, S., & Vigário, M. (2016). Infant communicative development assessed with the European Portuguese MacArthur-Bates Communicative Development Inventories Short forms. *First Language*, **36**(5), 525–545. https://doi.org/10.1177/0142723716648867

Spanish

López Ornat, S., Gallego, C., Gallo, P., Karousou, A., Mariscal, S., & Martínez, M. Evaluación de los niveles de lenguaje y comunicación de los niños pequeños. Inventario de desarrollo comunicativo de MacArthur. ISBN: 84-7174-820-7.

Welsh

Mills, D., Gathercole, V., & Ebanks, N. (2013). The Bangor Welsh Communicative Development Inventory: Words and Gestures. Bangor University.

Appendix 2: Calculation of UKBT Variables

Income	£0–£14,000	1
	£14,001–£24,000	2
	£24,001–£42,000	3
	£42,001 or more	4
Maternal education (MumEd)	No qualifications	1
	Below standard for a pass on the school-leaving examination	2
	O-levels (left school at 16)	3
	A-levels (left school at 18)	4
	Tertiary vocational qualifications	5
	An undergraduate degree	6
	A postgraduate degree	7
Paternal education (DadEd)	As MumEd	
Number of parental AL speakers (FamLang)	Value of 1 if only one parent is a native AL speaker, and 2 if both are	
Total number of speakers of English (SourcesEng)	A value from 0 upwards. Possible sources include a maximum of one BE speaking parent (scores 1), English DayCare (see below) (scores 1) and older children in the home (1 for each). Observed range for SourcesEng was 0–6	
Total number of speakers of the AL (SourcesAL)	A value from 1 upwards. Possible sources include a minimum of one and a maximum of two AL speaking parents (scores 1 each), AL daycare (see below) (scores 1) and older children in the home (1 for each). Observed range for SourcesAL was 1–7	
Time in English speaking daycare (EngDaycare)	Number of hours a week on average the child spends in an English speaking environment (nursery/day care/preschool/childminder/relative or friend)	

Time in AL speaking daycare (ALDaycare)	Number of hours a week on average the child spends in an Additional Language environment (nursery/ day care/preschool/childminder/relative or friend)
Number of older siblings (Siblings)	How many other children (24 months–18 years) live in the home
Proportion of English/AL in overheard speech (Overheard speech)	When both parents are together with the child, and they talk between the two of them, which language do they speak? 1. Always AL, 2. Usually AL, 3. English about half the time, 4. Usually English, 5. Always English
Proportion of English/AL in maternal speech (MumPropEng)	Does the mother speak 1. Always AL, 2. Usually AL, 3. English about half the time, 4. Usually English, 5. Always English
Proportion of English/AL in paternal speech (DadPropEng)	As Mother
Degree of language use consistency in mother's speech (MumConsistency)	Derived from MumPropEng as follows: 1 or 5 = 1, 2 or 4 = 2, 3 = 3
Degree of language use consistency in mother's speech (DadConsistency)	As MumConsistency
Degree of language use consistency in parents' speech (Consistency)	Average of MumConsistency and DadConsistency
Proportion of native/non-native English (PropEngN)	This variable concerns input from parents only. The hours spent with each parent was computed as 168—7*Sleep—EngDaycare—ALDaycare—Hours alone with other parent (for 59 children this value was negative and PropEngN and PropALN could not be computed). Parents' score on PropEng variable (1–5) was re-expressed as a proportion from 0 to 1 (1 = 0, 2 = .25, 3 = .5, 4 = .75, 5 = 1) This was multiplied by the hours the child spent with the parent to provide the hours of English input. If the parent was BE speaker this was native English input, if AL speaker this was non-native input. Both parents were assessed in this way. PropEngN was given by native English/ (native + non-native Eng)
Proportion of native/non-native AL (PropALN)	As above, parents' score on PropEng was expressed as a proportion from 0 to 1 (1 = 0, 2 = .25, 3 = .5, 4 = .75, 5 = 1), with this value then subtracted from 1 to provide a proportion of time speaking AL. This was multiplied by the hours the child spent with the parent to provide the hours of AL input. If the parent was AL speaker this was native AL input, if BE speaker this was non-native AL input. Both parents were assessed in this way. PropALN was given by native AL/ (native + non-native AL)

Appendix 3: Details of the Calculation of Percentage of English Exposure in a Typical Week in the Year Preceding Testing (LEQ, adapted from Cattani et al., 2014)

A. Input from the parents:

Number of hours a week in English-speaking nursery/childminder/playgroup = EngDaycare.

Number of hours a week in an Additional Language speaking nursery/relatives = ALDaycare.

Number of sleeping hours per night = Sleep.

Does the mother always speak the Additional Language (AL) to the Child, or usually, or equally often English and the AL, or usually English, or always English (five possible responses) = MumPropEng.

Does the father always speak the AL to the Child, or usually, or equally often English and the AL, or usually English, or always English (five possible responses) = DadPropEng.

When together, who speaks most to the child? Mother, father, or both = Most.

Number of hours per week spent with mother only = HM.

Number of hours per week spent with father only = HF.

B. Calculations

1. Assign a percentage to M and F, to estimate the proportion of English in each parent's input to the child.

If MumPropEng (or DadPropEng) = Always AL then ME (or FE) = 100.

If MumPropEng (or DadPropEng) = Usually AL then ME (or FE) = 75.

If MumPropEng (or DadPropEng) = Equally AL and English then ME (or FE) = 50.

If MumPropEng (or DadPropEng) = usually English then ME (or FE) = 25.

If MumPropEng (or DadPropEng) = always English then ME (or FE) = 0.

2. Correct HM and HF to give more weight to the time spent with the mother, as it is found usually that fathers tend to produce less verbal output to their child, therefore directly impacting on the amount of exposure in English and the Additional Language (e.g., Pancsofar & Vernon-Feagans, 2006).

Corrected time with mother = CHM = HM*4/3.

Corrected time with father = CHF = HF*2/3.

3. Assign a value (MI to Most), to give more weight to the mother's input. What is obtained corresponds to the percentage of the mother's input during the time when both parents are with the child.

If Most = Mother then MI = 90.
If Most = Father then MI = 50.
If Most = Both then MI = 70.

4. Calculate the number of hours per week with both parents together

TBP = 7(24-Sleep)—EngDaycare—ALDaycare—CHM—CHF.

5. Calculate the total number of hours of English exposure in a week (E) with the following formula:

E = English from mother when mother alone + English from father when father alone + English from mother when both parents together + English from father when both parents together + English from nursery or equivalent

$$E = \frac{\text{CHM(100-ME)}}{100} + \frac{\text{CHF(100-FE)}}{100} + \text{EngDaycare} + 0.01*\text{TBP}*\frac{\text{MI(100-ME)}}{100} + 0.01*\frac{\text{TBP(100-MI)(100-FE)}}{100}$$

With English from mother when mother alone = CHM(100-ME)/100.
English from father when father alone = CHF(100-FE)/100.
English from mother when both parents together = 0.01*TBP*MI(100-ME)/100.
English from father when both parents together = 0.01*TBP(100-MI)(100-FE)/100.

6. Calculate the percentage of exposure to English

$$P = \frac{E}{7(24 - \text{Sleep})}$$

Appendix 4: Breakdown of Languages for the Nontarget Additional Language Community

TABLE A4

NUMBER OF BILINGUAL CHILDREN PER LANGUAGE GROUP ($N = 58$); THEY ALL LEARN BRITISH ENGLISH AND ONE OF 26 ADDITIONAL LANGUAGES WHICH ARE NOT PART OF OUR 13 TARGET ADDITIONAL LANGUAGES

Arabic	6
Bosnian	1
Bulgarian	3
Catalan	1
Czech	3
Danish	3
Finnish	3
French (Quebec)	3
Hebrew	2
Hungarian	1
Japanese	5
Kannada	1
Latvian	1
Lithuanian	1
Norwegian	1
Punjabi	1
Romanian	2
Russian	1
Serbian	1
Slovak	8
Swedish	3
Tagalog	1
Tamil	1
Turkish	3
Ukrainian	1
Yoruba	1

Appendix 5: List and Results for Individual English Words in the Oxford Short Form CDI

TABLE A5.1

List of Words in the Oxford Short Form CDI and the 30-Word CDI (in Bold) in Their Order of Presentation to Parents

	Nouns	36	**table**		**Others**
1	donkey	37	bowl	70	bye bye
2	**elephant**	38	broom	71	cockadoodledoo
3	**fish**	39	brush	72	dinner
4	goose	40	**cup**	73	nap
5	kitten	41	glass	74	peekaboo
6	**lion**	42	key	75	yes
7	penguin	43	lamp	76	**big**
8	pig	44	light	77	clean
9	squirrel	45	money	78	**cold**
10	**aeroplane/plane**	46	**scissors**	79	**dirty**
11	**car**	47	**soap**	80	fast
12	**ball**	48	watch	81	happy
13	balloon	49	**flower**	82	**hot**
14	block/brick	50	outside	83	old
15	**book**	51	**sky**	84	soft
16	pen	52	swing	85	wet
17	butter	53	**tree**	86	**what**
18	cake	54	wall	87	**where**
19	cereal	55	aunt	88	why
20	meat	56	**mummy**	89	now
21	**milk**		**Action words**	90	today
22	tea	57	call	91	tomorrow
23	arm	58	carry	92	back
24	mouth	59	catch	93	in
25	**nose**	60	drop	94	all
26	toe	61	**fall**	95	not
27	bib	62	finish	96	another
28	glasses/specs	63	go	97	some
29	jacket	64	**play**	98	there
30	**shoe**	65	splash	99	I
31	**sock**	66	swim	100	her
32	zip	67	tickle		
33	**bed**	68	walk		
34	**chair**	69	want to		
35	**door**				

TABLE A5.2

For Words From the 30-Word CDI, Proportion of Bilingual Children (All 13 Target Additional Languages Collapsed) Who Produce and Understand Each Word in English

	Production				Comprehension			
	0–25%	>25–50%	>50–75%	>75–100%	0–25%	>25–50%	>50–75%	>75–100%
LEQ (Exposure)	$N=68$	$N=105$	$N=142$	$N=57$	$N=68$	$N=105$	$N=142$	$N=57$
aeroplane/plane	38.2	65.7	69.0	70.2	66.2	86.7	91.5	91.2
ball	69.1	84.8	92.3	93.0	86.8	99.0	99.3	100.0
bed	38.2	56.2	71.8	77.2	73.5	85.7	93.0	98.2
big	22.1	41.0	51.4	56.1	47.1	65.7	71.8	75.4
book	54.4	75.2	83.8	89.5	83.8	93.3	97.2	100.0
car	72.1	83.8	91.5	89.5	91.2	96.2	97.9	96.5
chair	27.9	50.5	65.5	719	63.2	85.7	93.0	94.7
cold	19.1	47.6	50.0	59.6	45.6	78.1	79.6	82.5
cup	29.4	47.6	58.5	63.2	60.3	80.0	89.4	91.2
dirty	20.6	41.9	49.3	64.9	47.1	77.1	83.8	84.2
door	32.4	61.9	76.8	84.2	73.5	87.6	95.1	96.5
elephant	44.1	49.5	61.3	59.6	83.8	85.7	89.4	93.0
fall	10.3	29.5	43.0	50.9	45.6	67.6	73.9	80.7
fish	64.7	72.4	80.3	7& 9	85.3	90.5	95.8	94.7
flower	29.4	52.4	63.4	64.9	60.3	81.0	90.8	96.5
hot	42.6	66.7	74.6	84.2	69.1	89.5	90.8	94.7
lion	32.4	56.2	59.2	64.9	73.5	85.7	90.8	94.7
milk	44.1	66.7	70.4	7a 9	75.0	91.4	93.0	94.7
mummy	94.1	95.2	92.3	96.5	97.1	98.1	97.9	100.0
nose	47.1	77.1	80.3	84.2	82.4	95.2	97.9	96.5
play	25.0	45.7	54.2	56.1	63.2	78.1	90.1	89.5

(*Continued*)

TABLE A5.2. (*Continued*)

	Production				Comprehension			
	0–25%	>25–50%	>50–75%	>75–100%	0–25%	>25–50%	>50–75%	>75–100%
LEQ (Exposure)	*N*=68	*N*=105	*N*=142	*N*=57	*N*=68	*N*=105	*N*=142	*N*=57
scissors	5.9	14.3	16.2	24.6	30.9	39.0	50.0	59.6
shoes	66.2	83.8	88.0	912	89.7	97.1	99.3	98.2
sky	13.2	35.2	40.8	45.6	30.9	64.8	66.9	75.4
soap	11.8	24.8	28.2	36.8	41.2	45.7	64.1	70.2
sock	51.5	74.3	81.0	80.7	76.5	91.4	96.5	98.2
table	20.6	38.1	50.0	5Z6	60.3	82.9	90.1	93.0
tree	30.9	48.6	64.8	6a 4	57.4	77.1	88.0	94.7
what	19.1	31.4	33.8	36.8	42.6	53.3	64.1	68.4
where	14.7	34.3	33.8	3a 6	61.8	73.3	79.6	84.2
Mean	36.4	55.1	62.5	67.1	65.5	80.8	86.7	89.6

Children's data are binned as a function of exposure (as measured by the Plymouth Language Exposure Questionnaire). For example, the word "ball" is produced by 69.1% of those children exposed to English between 0% and 25% of the time, and by 93.0% of those children exposed to English between 75% and 100%.