

The following supplementary material includes four tables and three figures:

Table S1, Table S2, Table S3, Table S4, Figure S1, Figure S2, Figure S3

Table S1 shows the transitive verb-object pairs tested in the experiment. Tables S2-S4 demonstrate the results of mixed-effects models of the Cantonese-English bilingual children's choice of null vs. overt objects in the production task in English and in Cantonese, and the Cantonese monolingual children's choice of null vs. overt objects in Cantonese. Figure S1 and S2 show examples of the visual stimuli, and Figure S3 illustrates the Context-Vocabulary-Verb interaction in the bilingual children's realization of objects in English.

Table S1. *Transitive verb-object pairs tested*

English				Cantonese			
Transitive verbs	Direct objects			Transitive verbs	Direct objects		
	Specified	Unspecified			Specified	Unspecified	
Two-argument:	<i>break</i>	<i>a vase</i>	<i>a wall</i>	Two-argument	<i>zing2laan6</i>	<i>faa1zeon1</i>	<i>coeng4</i>
Obligatorily transitive	<i>open</i>	<i>a present</i>	<i>a box</i>		<i>daa2hoi1</i>	<i>lai5mat6</i>	<i>hap2zai2</i>
	<i>pick</i>	<i>a corn</i>	<i>a tomato</i>		<i>zaak6</i>	<i>suk1mai5</i>	<i>faan1ke2</i>
	<i>wash</i>	<i>a shirt</i>	<i>a sock</i>		<i>sai2</i>	<i>saam1</i>	<i>maat6</i>
Two-argument:	<i>cook</i>	<i>a pancake</i>	<i>a pancake</i>		<i>zyu2</i>	<i>baan1kik1</i>	<i>baan1kik1</i>
Optionally transitive	<i>drink</i>	<i>milk</i>	<i>juice</i>		<i>jam2</i>	<i>ngau4naai5</i>	<i>gwo2zap1</i>
	<i>eat</i>	<i>a cake</i>	<i>a pancake</i>		<i>sik6</i>	<i>daan6gou1</i>	<i>baan1kik1</i>
	<i>paint</i>	<i>a wall</i>	<i>a cup</i>		<i>jau4</i>	<i>coeng4</i>	<i>bui1</i>
Three-argument	<i>give</i>	<i>a box</i>	<i>a cake</i>	Three-argument	<i>bei2</i>	<i>hap2zai2</i>	<i>daan6gou1</i>
	<i>pass</i>	<i>a bucket</i>	<i>a brick</i>		<i>dai6</i>	<i>tung2</i>	<i>zyun1</i>
	<i>put</i>	<i>a flower</i>	<i>a dress</i>		<i>baai2</i>	<i>faa1</i>	<i>kwan4</i>
	<i>send</i>	<i>a letter</i>	<i>a letter</i>		<i>gei3</i>	<i>seon3</i>	<i>seon3</i>

Table S2. Results from a mixed-effects model on the 68 Cantonese-English bilingual children's choice of null vs. overt objects in the English elicited production experiment (1,468 observations and 24 items)

Predictor	Estimate	Std. Error	z value	p value
Intercept	-2.803	0.341	-8.221	<.001*
Context (O-Spec vs. O-NSpec)	-2.065	0.429	-4.814	<.001*
Verb (OBL vs. OPT)	0.673	0.650	1.036	0.300
Verb (THR vs. TWO)	0.918	0.535	1.714	0.086
Age	-0.086	0.021	-4.013	<.001*
Vocabulary (PPVT scores)	0.002	0.021	0.084	0.933
Context × Verb (OBL vs. OPT)	1.305	1.051	1.242	0.214
Context × Verb (THR vs. TWO)	-1.639	0.899	-1.822	0.068
Context × Age	-0.015	0.018	-0.811	0.417
Context × Vocabulary	0.000	0.019	-0.025	0.980
Verb (OBL vs. OPT) × Age	0.015	0.027	0.543	0.587
Verb (THR vs. TWO) × Age	0.025	0.025	1.016	0.310
Verb (OBL vs. OPT) × Vocabulary	0.003	0.026	0.124	0.902
Verb (THR vs. TWO) × Vocabulary	-0.040	0.025	-1.574	0.115
Age × Vocabulary	0.002	0.002	1.159	0.247
Context × Verb (OBL vs. OPT) × Age	-0.021	0.046	-0.456	0.648
Context × Verb (THR vs. TWO) × Age	-0.005	0.038	-0.145	0.885
Context × Verb (OBL vs. OPT) × Vocabulary	-0.096	0.046	-2.082	0.037*
Context × Verb (THR vs. TWO) × Vocabulary	-0.053	0.040	-1.328	0.184
Context × Age × Vocabulary	0.000	0.002	0.063	0.950
Verb (OBL vs. OPT) × Age × Vocabulary	-0.001	0.002	-0.474	0.636
Verb (THR vs. TWO) × Age × Vocabulary	0.003	0.002	1.167	0.243
Context × Verb (OBL vs. OPT) × Age × Vocabulary	-0.001	0.004	-0.187	0.852
Context × Verb (THR vs. TWO) × Age × Vocabulary	0.000	0.004	0.014	0.989

* $p < .05$. Context was sum-coded; Verb was assigned reverse Helmert contrasts; Age and Vocabulary were mean-centred.

Table S3. Results from a mixed-effects model on the Cantonese-English bilingual children's choice of null vs. overt objects in the Cantonese elicited production experiment (1,583 observations, 68 children and 24 items)

Predictor	Estimate	Std. Error	z value	p value
Intercept	-2.137	0.398	-5.365	<.001*
Context (O-Spec vs. O-NSpec)	-4.874	0.607	-8.031	<.001*
Verb (THR vs. TWO)	-2.324	0.622	-3.738	<.001*
Age	-0.024	0.032	-0.750	0.453
Vocabulary (CRVT scores)	-0.102	0.126	-0.811	0.417
Context × Verb	1.764	1.181	1.493	0.135
Context × Age	-0.019	0.037	-0.507	0.612
Context × Vocabulary	-0.086	0.145	-0.593	0.553
Verb × Age	-0.031	0.042	-0.727	0.467
Verb × Vocabulary	0.218	0.167	1.303	0.193
Age × Vocabulary	-0.001	0.006	-0.189	0.850
Context × Verb × Age	-0.058	0.071	-0.816	0.415
Context × Verb × Vocabulary	0.282	0.282	0.999	0.318
Context × Age × Vocabulary	-0.001	0.007	-0.198	0.843
Verb × Age × Vocabulary	0.005	0.008	0.676	0.499
Context × Verb × Age × Vocabulary	0.005	0.013	0.353	0.724

* $p < .05$. Context and Verb were sum-coded; Age and Vocabulary were mean-centred.

Table S4. Results from a mixed-effects model on the Cantonese monolingual children's choice of null vs. overt objects in the Cantonese elicited production experiment (458 observations, 20 children and 24 items)

Predictor	Estimate	Std. Error	z value	p value
Intercept	-1.991	0.570	-3.494	<.001*
Context (O-Spec vs. O-NSpec)	-4.568	1.124	-4.066	<.001*
Verb (THR vs. TWO)	-3.022	1.118	-2.702	0.007*
Age	-0.047	0.038	-1.241	0.215
Vocabulary (CRVT scores)	-0.089	0.105	-0.847	0.397
Context × Verb	-1.072	2.234	-0.480	0.631
Context × Age	-0.092	0.071	-1.296	0.195
Context × Vocabulary	-0.345	0.196	-1.758	0.079
Verb × Age	-0.021	0.071	-0.293	0.769
Verb × Vocabulary	-0.092	0.195	-0.472	0.637
Age × Vocabulary	-0.001	0.006	-0.184	0.854
Context × Verb × Age	-0.299	0.141	-2.131	0.033*
Context × Verb × Vocabulary	0.121	0.390	0.310	0.756
Context × Age × Vocabulary	-0.017	0.010	-1.584	0.113
Verb × Age × Vocabulary	0.004	0.010	0.372	0.710
Context × Verb × Age × Vocabulary	-0.016	0.021	-0.757	0.449

* $p < .05$. Context and Verb were sum-coded; Age and Vocabulary were mean-centred.

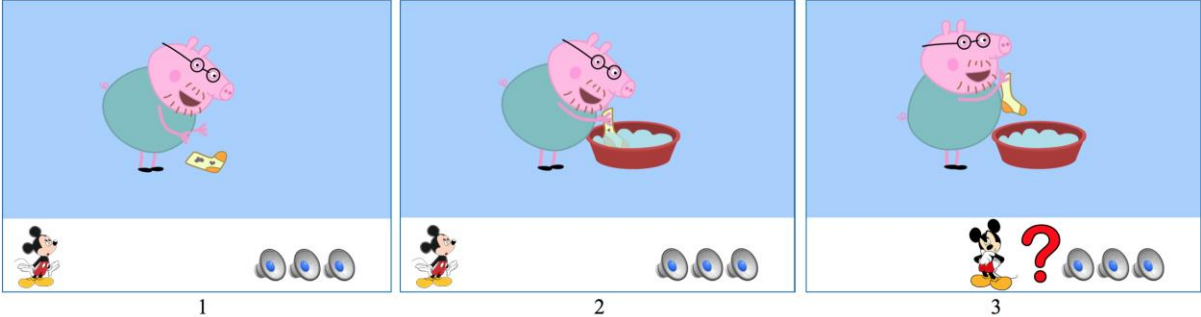


Figure S1. Screenshots of the movie in the object-specified condition (O-Spec)

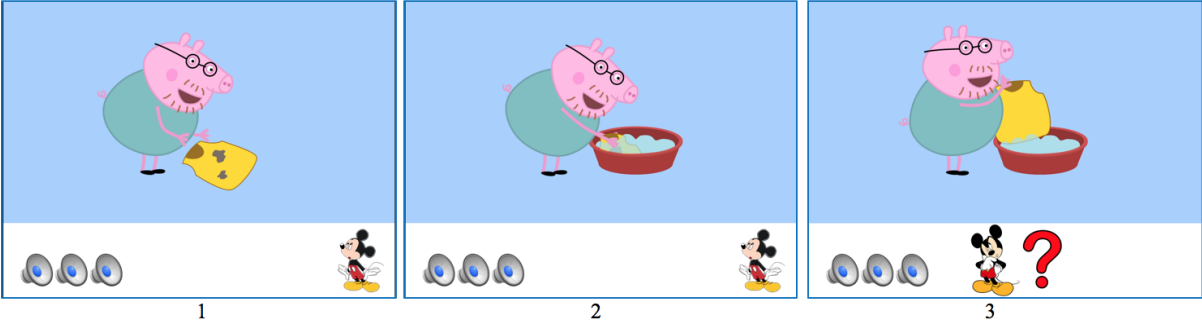


Figure S2. Screenshots of the movie in the object-unspecified condition (O-NSpec)

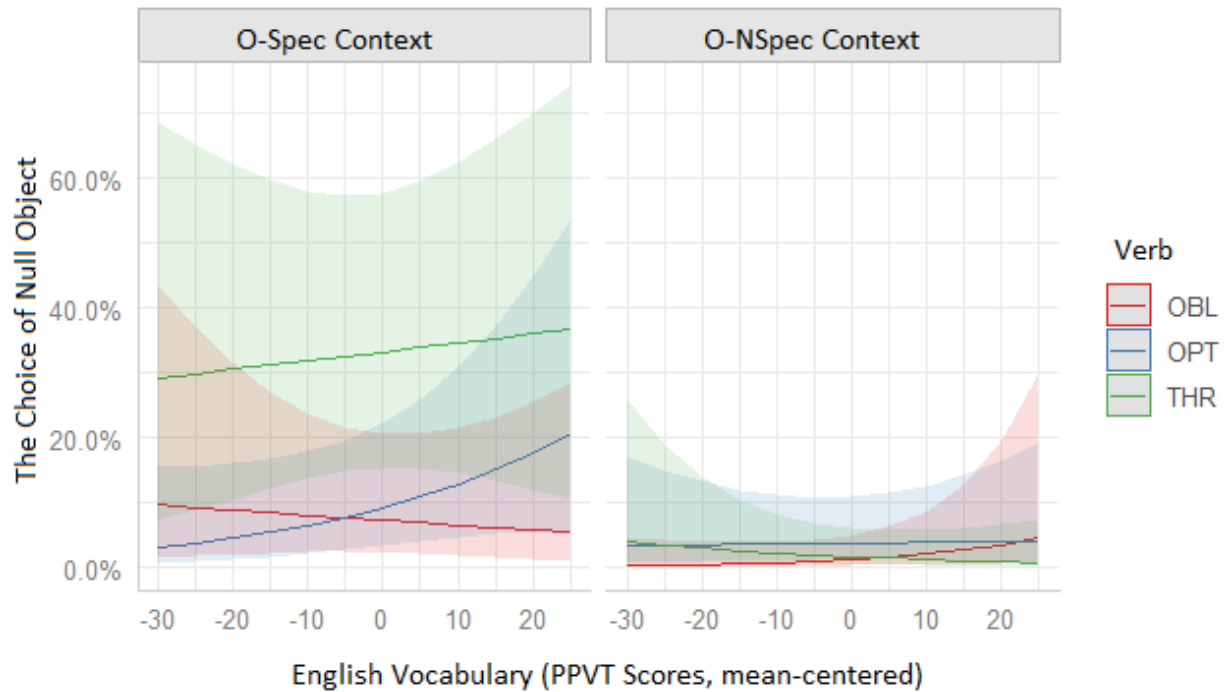


Figure S3. Predicted probability of the choice of null vs. overt objects in English in Cantonese-English bilingual children. Regression lines represent the effect of English Vocabulary scores (i.e., PPVT scores) on each type of Verb (OBL, OPT, THR) in O-Spec and O-NSpec contexts, respectively, while holding all other predictors of the best model constant. Continuous variables (i.e., PPVT scores and Age) were mean-centred by subtracting the mean from each value. 0 on the X-axis means the PPVT score is at the mean level. Shaded bands represent the 95% confidence intervals.