

PHONOLOGICAL SAMPLING

Name: Pip (4;7yrs.) SBS

Data used: picture naming task

	Orthographic Gloss	Adult Target	Child Realisation
1	APPLE	apəl	apəl
2	BADGE	badʒ	bad
3	BRUSH	bɪʌʃ	bʌ
4	BUCKET	bʌkɪt	bʊʔɪʔ
5	BUS	bʌs	bʌ
6	CAR	kɑ	dɑ
7	DRIVER	dɪɑrvə	wɑɪwə
8	CARAVAN	kɑrəvən	dawəwən
9	CASE	keɪs	dɛɪ
10	CHAIR	tʃeə	dɛə
11	CHEESE	tʃi:z	did
12	DOLL	dɒl	dɒl
13	GIRL	gɜ:l	dɜ:l
14	JAR	dʒɑ	dɑ
15	KNIFE	naɪf	naɪ
16	LETTER	letə	leʔə
17	STAMP	stɑmp	dɑmp
18	NOSE	nəʊz	nəʊd
19	ELEPHANT	ɛləfənt	ɛləwənt
20	HOUSE	haʊs	haʊ

	Orthographic gloss	Adult Target	Child Realisation
21	LADDER	ladə	ladə
22	FLOWER	flaʊə	wɑʊə
23	FORK	fɔ:k	wɔʔ
24	GLOVE	glʌv	dʊb
25	GO	gəʊ	dəʊ
26	SHEEP	ʃi:p	ʃi:p
27	SHOE	ʃu	ju
28	SNAKE	sneɪk	neɪʔ
29	SOAP	səʊp	ʃəʊp
30	SOCK	sɒk	ʃɔʔ
31	SPADE	speɪd	beɪd
32	THUMB	θʌm	ʃʊm
33	TIGER	taɪgə	dɑɪdə
34	TOE	təʊ	dəʊ
35	TORCH	tɔ:tʃ	dɔ:t
36	TROUSERS	traʊzəz	wɑʊdəd
37	VAN	vən	wən
38	WHISTLE	wɪsəl	wɪʔəl
39	WASHING MACHINE	wɒʃɪŋ məʃɪn	wɒʔɪn məʃɪn
40	WATCH	wɒtʃ	wɒt

Additional data:

	Orthographic Gloss	Adult Target	Child Realisation
41	DINOSAUR	dɑnəsɔ	dɑnəʔɔ
42	FIRE ENGINE	faɪə ɛndʒɪn	wɑɪə ɛndɪn
43	DOOR	dɔ	dɔ
44	ROOF	rʊf	wu
45	PIG	pɪg	bɪd
46	RABBIT	ræbɪt	wæbɪʔ
47	RING	rɪŋ	wɪn
48	PLASTER	plɑstə	bɑʔə
49	MOUTH	maʊθ	maʊ

	Orthographic Gloss	Adult Target	Child Realisation
50	ZOO	zu	ju
51	FEATHER	feðə	wedə
52	HAND	hænd	hænd
53	HORSE	hɔ:s	hɔ
54	PURSE	pɜ:s	bɜ
55	MONEY	mʌni	mʊni
56	PICTURE	pɪktʃə	bɪʔə
57	SAND	sænd	ʃænd
58	SCISSORS	sɪzəz	ʃɪdəd

LCSD05 Clinical Linguistics and Phonetics Phonological Analysis practice exam paper

Attempt **all** the questions. Write your answers to (4)-(12) on the paper provided making sure you that you number your answers and write your candidate number at the top of each sheet. The marks awarded for each question are indicated on the right. Total marks [100]

In addition to your answer paper, you will need to hand in each of the following:

- i. Phonological Sampling sheet
- ii. Phonetic and Phonological Systems Analysis (PPSA) sheet

		Mark Awarded
1	Complete the table on the Phonological Sampling sheet to give the adult target forms for items 41-58 . ½ mark deducted per error to a maximum of 2 (i.e. 4 errors)	2
2	Chart the data on the PPSA as appropriate for singleton consonants [12 marks] and clusters [4 marks]. NB. Make sure you chart all the data, i.e., include the additional data. See completed PPSA	16
3	Complete the PPSA Error Pattern Summary (p. 2). NB. The number of marks awarded does not necessarily reflect the number of processes/patterns in operation. Marks are deducted for incorrect answers See completed PPSA	10
4	(a) What consonant sounds does Pip have in her phonetic inventory? [p, b, t, d, m, n, h, w, l, j]	2
	(b) Which singleton consonant phonemes have not been tested in the current sample? [ʒ, j]	2

(c) Which of the phonemes tested would you want to assess for stimulability? [k, g, ŋ, f, v, θ, ð, s, z, ʃ, tʃ, dʒ, ɹ] 4

5 What evidence is there in the data of progressive change within Pip's system, i.e., of processes/patterns already moving towards resolution? You should consider each process/pattern in turn and aim to provide as much detail as possible. 8

Note: while there is principled variation in Pip's treatment of individual sounds, there is **relatively little evidence** in this data set of progressive variability i.e. of *processes* beginning to resolve. The marks awarded reflect this. For this question, note what you can. Tip: think also about emerging *contrasts*, e.g. what evidence is there of an emerging place contrast or an emerging voice contrast.

Final C deletion

Final C deletion is largely resolved and applies only in the case of the voiceless fricatives. Where tested:

- **Nasals and the plosives /p/ and /d/ are achieved 100% correctly word-finally**
- **While Pip fails to realise other consonants correctly word-finally (/g, z, dʒ/ realised as [d], /t, k/ as [ʔ], /v/ as [b] and /tʃ/ as [t]), she achieves final CVC closure in each case.**

Cluster reduction

All initial clusters are reduced. However,

- **Final clusters are beginning to emerge as evidenced by Pip's correct production of /-mp/, /-nt/ and /-nd/**
- **Pip also produces [-nd-] word-medially in place of /-ndʒ-/. While /dʒ/ is stopped to [d], Pip shows that she is able to produce a sequence of two consonants word-medially**

Vowel raising

- **Only applies in the case of the mid-low back vowel /ʌ/. Other mid-low and mid-high vowels are produced correctly.**

Velar fronting applies 100%

NB. Realisation of /k/ as [ʔ] word-medially and word finally reflects progression in terms of achieving a syllable-final

consonant. There is no evidence of progression towards achieving correct velar articulation.

Pip has a limited phonetic inventory and severely reduced system of contrasts. Process application (with the exception of final C deletion and cluster reduction) is 100%. In such cases, it is necessary to take a more 'wide-angled' approach and look for evidence of contrasts emerging. For example, in Pip's case, there is some evidence of a voicing contrast emerging word-finally:

- There are no examples of post-vocalic devoicing
 - the voiced alveolar plosive /d/ is produced correctly ¹/₁
 - the voiced velar plosive /g/ is also produced as [d] ¹/₁.
Even though /g/ is fronted, it retains the correct voicing feature (i.e. it is realised as [d], not [t])
 - the voiced fricatives /v, d/ are both realised with appropriate voicing word-finally as is the voiced affricate /dʒ/

Furthermore,

- the voiceless bilabial plosive /p/ is produced correctly word-medially and finally
- the voiceless affricate /tʃ/ is realised with appropriate voicing maintaining a voicing contrast with /dʒ/ (realised as [d])

Additionally,

- although the voiceless fricatives /f, θ, s, ʃ/ are deleted (and hence are not specified for voicing), it is noteworthy that they are treated differently from the voiced fricatives in the sample which are stopped.

Note also that while Pip glides fricatives (excluding /h/) 100% word-initially, she is able to signal a place contrast between labial and lingual fricatives.

6 Give your initial hypothesis regarding Pip's differential diagnosis and outline the reasons for your decision.

8

Phonological disorder

- **Limited phonetic inventory and severely reduced system of contrasts, particularly word-finally**
- **Atypical process: gliding of fricatives**
- NB. Consistency of production across different repetitions of the same word has not been tested. , Variability in the production of phonemes is systematic (e.g. see notes on Pip's treatment of fricatives)

7 Give a brief description of Pip's treatment of fricatives, identifying any conditioning factors. Tip: in questions like these, you are simply required to look for patterns, systematic trends in the data. How are sounds within a given class (e.g. fricatives) treated differently? What features does one sub-group (e.g. labial vs lingual fricatives) share that is not shared by the other sub-group?

6

Fricatives are treated variably depending on their place of articulation and voicing feature as well as the position they occupy in the word

- **Word-initially, fricatives are glided to either [w] or [j] Word finally voiced fricatives are stopped to either [b] or [d] and voiceless fricatives /f, θ, s, ʃ/ are deleted**
- **Word-initially, labio-dental fricatives are glided to labio-velar [w] while the *lingual* fricatives /θ, s, z, ʃ/ are glided to palatal [j]**

NB. Pip clearly has difficulty achieving the narrow stricture required to achieve frication. Word-initially she produces a more open gesture (i.e. an approximant). Word-finally she produces a more closed gesture (i.e. a plosive) or no gesture (i.e. deletes the final fricative)

Variable treatment of fricatives across word position can be explained by English phonotactics which rule out the option of gliding word-finally, i.e. the glides (also known as semi-vowels) /w, j/ can only occur syllable-initially. The labio-dental fricatives are glided word-medially. If you look back at the transcription data you will see that in each case, the target fricative occurs syllable-initially within the word: elephant [ɛl.ə.wənt], driver [waɪ.wə], caravan [da.wə.wan]. (Dots indicate syllable boundaries)

Variable treatment of fricatives word-finally appears to be conditioned by voicing. Voiceless fricatives are deleted, voiced fricatives are stopped.

Variable treatment of fricatives word-initially is conditioned by fricative place of articulation. Word-initially, labio-dental fricatives are glided to labio-velar [w] while the lingual fricatives are glided to palatal [j]. Thus, although unable to achieve correct fricative production, Pip is able to signal a two-way *place* contrast among fricatives in this word position.

8 Briefly describe the phonological processes involved in the realisation of the following words. Specify which consonant or vowel each process applies to: 6

- i. 'glove' realised as [dʌb]
- ii. 'flower' realised as [wauə]
- iii. 'trousers' realised as [waʊdɪd]

- **The cluster /gl/ is reduced to its first element [g] which is fronted to [d]. The final fricative /v/ is stopped to [b]**
- **The cluster /fl/ is reduced to its first element [f] which is glided to [w]** Note that this account fits with the data for singleton consonants where there are examples of /f/ → [w] but no examples of /l/ → [w]
- **The cluster /tɪ/ is reduced to its second element [ɪ] which is glided to [w]. Word-medial and word-final /z/ are stopped to [d].** Note /t/ → [w] is not phonetically principled. There are also examples of /ɪ/ → [w] in the data for singleton consonants.

9 The speech sample is very limited and further data collection is warranted to test/confirm observations. Outline what further 6

data you would collect and why.

- **Gliding of fricatives:** an atypical process that will have high impact on intelligibility. A limited number of tokens in existing sample, require further data collection to confirm observed patterns

/f, v/ wf (deleted or stopped?) Given that Pip is able to produce /p/ word-finally, might predict /f/ → [p] wf

/θ, ð/ all word positions – very limited data (predict same pattern as for /s, z/

/z/ wi – no tokens, would predict gliding to [j]

/ʃ/ word-finally, no data (expect it to follow pattern observed for /s/)

- **Final C deletion:** 'gaps' in data: /b/, /ð, ʒ/, limited tokens for: /t, d, g, m, n, f, v, θ, ʃ, tʃ, dʒ/

Useful to assess extent to which this has resolved and the extent of glottal replacement as an intermediate stage between application and resolution

- **Voicing:** More tokens of final /b, d, g/ and /p, t/ would also provide insight into Pip's ability to produce a consistent voicing contrast across different word positions
- **Cluster reduction:** useful to collect more data to establish any patterns in the treatment of obstruent + liquid clusters

/pɫ/ → [b], /bɫ/ → [b], /gɫ/ → [d] but
/tɫ/ → [w], /dɫ/ → [w], /fɫ/ → [w]

NB. It is important to consider how many di- and multi-syllabic words are included in the sample, particularly in the case of older school-age children. Process occurrence is likely to be more evident in longer, more articulatorily complex words. Analysis of a short connected speech sample is also recommended, particularly in cases of moderate to severe difficulty.

- 10 Which targets would you prioritise for therapy when working with Pip? Select **one** phonological process or atypical pattern and state which **two** phonemes you would target first and in which word position/s. Give a brief rationale for your decision. 10

There is no single correct answer. Marks are awarded for

- **Selecting processes which are delayed (as opposed to age-appropriate) or atypical and phonemes which are subject to incorrect realisation.**
- **A brief rationale in terms of whether you are selecting targets on the basis of traditional or newer selection criteria.**

In general, traditional criteria recommend prioritising earlier acquired phonemes and/or phonemes for which the child shows most productive phonological knowledge (PPK) . The aim is to build on success and consolidate emerging contrasts before targeting more 'difficult' areas.

Newer selection criteria recommend prioritising later acquired phonemes and/or phonemes for which the child shows less PPK. Recommended in the case of older children (i.e., > 4;0 yrs) and in more severe/complex cases.

Pip has most productive phonological knowledge of plosives. If following a traditional approach, target

- **final C deletion/glottal replacement: /p, t/ (Pip can achieve /p/ word-finally. While there are no examples of /t/ word-finally, she is able to produce the voiced alveolar stop in this position. So she has PPK of alveolar place of articulation. She has no PPK of velar place of articulation.**
- **pre-vocalic voicing: /p/ and /t/ (Pip has no PPK of velars, voiced or voiceless)**

If following newer approach, target

- **final C deletion: /k/ and any of /f, s, ʃ/ (least PPK)**
- **pre-vocalic voicing: /k/ and /t/**

Targeting word-final production of the voiceless plosive /t/ and the fricatives /s, z/ can also be justified in

terms of impact on intelligibility and child's ability to signal morphological endings, e.g. past tense and plural (traditional criteria).

Alternatively, you might decide to target gliding of fricatives word-initially since this is the pattern that deviates most from the norm (traditional criteria)

Pip shows no PPK of any fricative word-initially or finally. Following a traditional approach you would prioritise earlier acquired fricatives, e.g. /f/ or /s/ before /ʃ/ (or stimulable before non-stimulable fricatives – unfortunately you don't yet have information on stimulability of phonemes)

Following the newer approach, you would prioritise later acquired fricatives, e.g. /ʃ/ or the affricates or /s/ clusters. Clusters imply singletons. For example, target /s/ clusters to achieve both /s/ in clusters and singleton /s/

- 11 Make up **two** examples to illustrate what is meant by each of the following phonological process terms: NB. Follow the format shown in example i. below: 8

- i. alveolar backing, e.g. /ti/ → [ki], /bat/ → [bak]
- ii. vowel raising, e.g. /ɛg/ → [ɪg], /kʌp/ → [kup]
- iii. stopping of affricates, e.g. /tʃik/ → [tik], /dʒɔdʒ/ → [dɔd]
- iv. palatal fronting, e.g. /ʃɒp/ → [sɒp], /fɪʃ/ → [fis]
- v. lateralisation, e.g. /si/ → [ʃi], /hɔs/ → /hɔʃ/

- 12 List **four** minimal pairs to use when targeting **each** of the following processes/patterns. **Transcribe these phonetically.** 8

Any reasonable

- i. post-vocalic de-voicing of plosives, e.g. /kʌb/ ~ /kʌp/, /bʌd/ ~ /bʌt/, /kʌd/ ~ /kʌt/, /bʌg/ ~ /bʌk/
- ii. gliding of fricatives, e.g. /fm/ ~ /wm/, /vam/ ~ /wam/, /ʃeɪ/ ~ /jeɪ/, /su/ ~ /ju/

- iii. obstruent + liquid cluster reduction, **e.g.** /pleɪ/ ~ /peɪ/, /pleɪm/ ~ /peɪm/, /breɪk/ ~ /beɪk/, /gləʊ/ ~ /gəʊ/
- iv. deletion of plosives word-finally, **e.g.** /bɪd/ ~ /bɪ/, /sɪt/ ~ /sɪ/, /ləʊd/ ~ /ləʊ/, /bəʊt/ ~ /bəʊ/