

CHAPTER III

DATA PRESENTATION AND DATA ANALYSIS

The discussion in this chapter focuses on data presentation and analysis of the respondents. The data is the transcribed speech of the five cerebral palsied children of YPAC (Yayasan Pembinaan Anak-anak Cacat / The Indonesian Society for the Care of Disabled Children) Cabang Surabaya. The data is classified based on their place of articulation and the position of sound in the word (initial, medial, or final), and then analyzed based on three main types of phonological alteration: deletion, insertion and metathesis, and the development of those alterations.

III. 1. DATA PRESENTATION

III. 1. 1. Respondent A – Ingrid Christanti

Respondent A sometimes makes metathesis alterations, and combines both deletion and metathesis alterations in producing utterances.

III. 1. 1. 2. Metathesis

When respondent speaks, she replaces many sounds with other sounds either in initial, medial, or final position.

1. One sound consonant metathesis in initial position.

Table A.1.

No.	Word	Phonemic transcription	Pronounced
1.	rame	/ rame /	/ lame /

2.	fasih	/ faslh /	/ paslh /
3.	zat	/ zat /	/ dat /
4.	sehat	/ sehat /	/ tehat /
5.	ban	/ ban /	/ pan /
6.	rakyat	/ ra?yat /	/ la?yat /

From the table above, we can see that respondent A replaces:

- ✚ / r / with / l / in *rame* / rame / becomes / lame /
- ✚ / f / with / p / in *fasih* / faslh / becomes / paslh /
- ✚ / s / with / t / in *sehat* / sehat / becomes / tehat /
- ✚ / b / with / p / in *ban* / ban / becomes / pan /
- ✚ / r / with / l / in *rakyat* / ra?yat / becomes / la?yat /

Respondent A replaces *apiko alveolar* / r / with *apiko alveolar* / l /, *labiodental* / f / with *bilabial* / p /, *lamino alveolar* / s / with *apikodental* / t /, and *bilabial* / b / with *bilabial* / p / in initial position.

2. One sound consonant metathesis in medial position

Table. A.2.

No.	Word	Phonemic transcription	Pronounced
1.	ebi	/ ɛbi /	/ ɛpi /
2.	udara	/ udara /	/ udala /
3.	kacau	/ kacaU /	/ kataU /
4.	lezat	/ ləzat /	/ ləsət /
5.	sunyi	/ suŋi /	/ suni /

From the table above, we can see that respondent A replaces:

- ✚ / b / with / p / in *ebi* / ɛbi / becomes / epi /
- ✚ / r / with / l / in *udara* / udara / becomes / udala /
- ✚ / c / with / t / in *kacau* / kacaU / becomes / kataU /
- ✚ / z / with / s / in *lezat* / læzat / becomes / læsat /
- ✚ / ñ / with / n / in *sunyi* / suñi / becomes / suni /

Respondent A replaces *bilabial* / b / with *bilabial* / p /, *apiko alveolar* / r / with *apiko alveolari* / l /, *medio palatal* / c / with *apikodental* / t /, *lamino alveolar* / z / with *lamino alveolar* / s /, and *medio palatal* / ñ / with *apiko alveolar* / n / in medial position.

3. One sound consonant metathesis in final position

Table A.3.

No.	Word	Phonemic transcription	Pronounced
1.	kafir	/ kafɪr /	/ kafɪl /
2.	emas	/ əmas /	/ əmat /
3.	kawan	/ kawan /	/ kawat /
4.	cacar	/ cacar /	/ cacah /

From the table above, we can see that respondent A replaces:

- ✚ / r / with / l / in *kafir* / kafɪr / becomes / kafɪl /
- ✚ / s / with / t / in *emas* / əmas / becomes / əmat /
- ✚ / n / with / t / in *kawan* / kawan / becomes / kawat /
- ✚ / r / with / h / in *cacar* / cacar / becomes / cacah /

Respondent A replaces *apiko alveolar* / r / with *apiko alveolar* / l /, *lamino alveolar* / s / with *apikodental* / t /, *apiko alveolar* / n / with *apikodental* / t /, *apiko alveolar* / r / with *laringeal* / h / in final position.

4. Two sounds consonants metathesis

Table A.4.

No.	Word	Phonemic transcription	Pronounced
1.	turun	/ turUn /	/ tulUt /
2.	syarat	/ ʃarat /	/ sayat /
3.	khilaf	/ xilaf /	/ kilat /
4.	syekh	/ ʃex /	/ seh /
5.	asyik	/ aʃik /	/ asI? /

From the table above, we can see that respondent A replaces:

- ✚ *apiko alveolar* / r / in medial position with *apiko alveolar* / l /, and *apiko alveolar* / n / in final position with *apikodental* / t / in *turun* / turUn / becomes / tulUt /.
- ✚ *lamino palatal* / ʃ / in initial position with *lamino alveolar* / s /, and *apiko alveolar* / r / in medial position with *medio palatal* / y / in *syarat* / ʃarat / becomes / sayat /.
- ✚ *dorsovelar* / x / in initial position with *dorsovelar* / k /, and *labiodental* / f / in final position with *apikodental* / t / in *khilaf* / xilaf / becomes / kilat /.

✚ *lamino palatal* / ʃ / in initial position with *lamino alveolar* / s /, and *dorsovelar* / x / in final position with *laringeal* / h / in *syekh* / ʃɛx / becomes / seh /.

✚ *lamino palatal* / ʃ / in medial position with *lamino alveolar* / s /, and *dorsovelar* / k / with *glottal* / ʔ / in *asyik* / aʃɪk / becomes / asɪʔ /

5. Three sounds consonants metathesis

Table A.5.

No.	Word	Phonemic transcription	Pronounced
1.	nyaring	/ɲarɪŋ/	/nalɪn/

From the table above, we can see that respondent A replaces:

✚ *medio palatal* / ɲ / in initial position with *apiko alveolar* / n /, *apiko alveolar* / r / in medial position with *apiko alveolar* / l /, and *dorsovelar* / ŋ / in final position with *apiko alveolar* / n / in *nyaring* / ɲarɪŋ / becomes / nalɪn /.

6. One sound diphthong and one sound consonant metathesis

Table A.6.

No.	Word	Phonemic transcription	Pronounced
1.	saudara	/saUdara/	/sodala/

From the table above, we can see that respondent A replaces:

✚ *up closed backward diphthong* / aU / in medial position with *back middle upper vowel* / o /, and *apiko alveolar* / r / in

medial position with *apiko alveolar* / l / in *saudara* / saUdara / becomes / sodala /.

III. 1. 1. 3. Deletion – Metathesis Alteration

In producing utterances, she also makes once deletion and metathesis alteration at the same time.

1. One sound consonant deletion and one sound consonant metathesis

Table A.7.

No.	Word	Phonemic transcription	Pronounced
1.	ikhtisar	/ixtisar/	/itisal/

From the table above, we can see that respondent A:

- ✦ deletes *dorsovelar* / x / in medial position and replaces *apiko alveolar* / r / in final position with *apiko alveolar* / l / in *ikhtisar* /ixtisar/ becomes / itisal /.

III. 1. 2. Respondent B – Dinda Putri Rahmawati

Respondent B often makes deletion and metathesis alterations, or combines both alterations in producing utterances in all positions of the words.

III. 1. 2. 1. Deletion

When respondent B speaks, she often deletes sounds, either in initial, medial, or final position.

1. One sound consonant deletion in initial position

Table B.1.

No.	Word	Phonemic transcription	Pronounced
1.	rame	/ rame /	/ ame /
2.	nenek	/ nenek /	/ enek /
3.	lampu	/ lampu /	/ ampu /
4.	zat	/ zat /	/ at /
5.	logam	/ logam /	/ ogam /
6.	gelap	/ gəlap /	/ əlap /

From the table above, we can see that respondent B deletes:

- ✚ / r / in *rame* / rame / becomes / ame /
- ✚ / n / in *nenek* / nenek / becomes / enek /
- ✚ / l / in *lampu* / lampu / becomes / ampu /
- ✚ / z / in *zat* / zat / becomes / at /
- ✚ / l / in *logam* / logam / becomes / ogam /
- ✚ / g / in *gelap* / gəlap / becomes / əlap /

Respondent B deletes *apiko alveolar* / r /, / l /, and / n /, *lamino alveolar* / z /, and *dorsovelar* / g / in initial position.

2. One sound consonant deletion in medial position

Table B.2.

No.	Word	Phonemic transcription	Pronounced
1.	bangku	/ baŋku /	/ baku /

From the table above, we can see that respondent B deletes:

✚ / ŋ / in *bangku* / baŋku / becomes / baku /

Respondent B deletes *dorsovelar* / ŋ / in medial position.

3. One sound consonant deletion in final position

Table B.3.

No.	Word	Phonemic transcription	Pronounced
1.	emas	/ əmas /	/ əma /
2.	otot	/ ɔtɔt /	/ ɔtɔ /
3.	ban	/ ban /	/ ba /
4.	duduk	/ dudUk /	/ dudU /

From the table above, we can see that respondent B deletes:

✚ / s / in *emas* / əmas / becomes / əma /

✚ / t / in *otot* / ɔtɔt / becomes / ɔtɔ /

✚ / n / in *ban* / ban / becomes / ba /

✚ / k / in *duduk* / dudUk / becomes / dudU /

Respondent B deletes *lamino alveolar* / s /, *apikodental* / t /, *apiko alveolar* / n /, and *dorsovelar* / k / in final position.

4. Two sounds consonant deletion

Table B.4.

No.	Word	Phonemic transcription	Pronounced
1.	kawan	/ kawan /	/ awa /

From the table above, we can see that respondent B deletes:

- ✚ *dorsovelar / k /* in initial position and *apiko alveolar / n /* in final position in *kawan / kawan /* becomes */ awa /*.

5. One sound consonant and one vowel deletion

Table B.5.

No.	Word	Phonemic transcription	Pronounced
1.	sehat	/ sehat /	/ hat /
2.	lezat	/ læzat /	/ lat /

From the table above, we can see that respondent B deletes:

- ✚ *lamino alveolar / s /* in initial position and *front middle upper vowel / e /* in medial position in *sehat / sehat /* becomes */ hat /*.
- ✚ *central middle vowel / ə /* in medial position and *lamino alveolar / z /* in medial position in *lezat / læzat /* becomes */ lat /*.

6. Two sounds consonant and one vowel deletion

Table B.6.

No.	Word	Phonemic transcription	Pronounced
1.	saldo	/ saldo /	/ do /

From the table above, we can see that respondent B deletes:

- ✚ *lamino alveolar* / s / in initial position, *front low vowel* / a / in medial position, and *apiko alveolar* / l / in medial position in *saldo* / saldo / becomes / do /.

III. 1. 2. 2. Metathesis

In producing utterances, respondent B often replaces one sound with another sound either in initial, medial, or final position of the words.

1. One sound consonant metathesis in initial position.

Table B.7.

No.	Word	Phonemic transcription	Pronounced
1.	ngilu	/ ŋilu /	/ nilu /
2.	rakyat	/ raʔyat /	/ laʔyat /

From the table above, we can see that respondent B replaces:

- ✚ / ŋ / with / n / in *ngilu* / ŋilu / becomes / nilu /
- ✚ / r / with / l / in *rakyat* / raʔyat / becomes / laʔyat /

Respondent B replaces *dorsovelar* / ŋ / with *apiko alveolar* / n /, and *apiko alveolar* / r / with *apiko alveolar* / l / in initial position.

2. One sound consonant metathesis in medial position.

Table B.8.

No.	Word	Phonemic transcription	Pronounced
1.	ebi	/ ebi /	/ epi /
2.	udara	/ udara /	/ udala /

3.	sunyi	/ suɲi /	/ suni /
----	-------	----------	----------

From the table above, we can see that respondent B replaces:

- ✚ / b / with / p / in *ebi* / ibu / becomes / epi /
- ✚ / r / with / l / in *udara* / udara / becomes / udala /
- ✚ / ŋ / with / n / in *sunyi* / suɲi / becomes / suni /

Respondent B replaces *bilabial* / b / with *bilabial* / p /, *apiko alveolar* / r / with *apiko alveolar* / l /, and *medio palatal* / ŋ / with *apiko alveolar* / n / in medial position.

3. One sound consonant metathesis in final position

Table B.9.

No.	Word	Phonemic transcription	Pronounced
1.	wayang	/ wayaŋ /	/ wayah /
2.	halus	/ halus /	/ halut /

From the table above, we can see that respondent B replaces:

- ✚ / ŋ / with / h / in *wayang* / wayaŋ / becomes / wayah /
- ✚ / s / with / t / in *halus* / halus / becomes / halut /

Respondent B replaces *dorsovelar* / ŋ / with *laringeal* / h /, and *lamino alveolar* / s / with *apikodental* / t / in final position.

4. Two sounds consonant metathesis

Table B.10.

No.	Word	Phonemic transcription	Pronounced
1.	minta	/ minta /	/ miŋka /
2.	turun	/ turUn /	/ tuɭUɭ /

3.	syekh	/ʃɛx/	/sɛh/
----	-------	-------	-------

From the table above, we can see that respondent B replaces:

- ✚ *apiko alveolar / n /* in medial position with *dorsovelar / ŋ /*, and *apikodental / t /* in medial position with *dorsovelar / k /* in *minta / minta /* becomes *miŋka /*.
- ✚ *apiko alveolar / r /* in medial position with *apiko alveolar / l /*, and *apiko alveolar / n /* in final position with *apiko alveolar / l /* in *turun / turUn /* becomes *tulUl /*.
- ✚ *lamino palatal / ʃ /* in initial position with *lamino alveolar / s /*, and *dorsovelar / x /* in final position with *laringeal / h /* in *syekh / ʃɛx /* becomes *sɛh /*.

5. Three sounds consonant metathesis

Table B.11.

No.	Word	Phonemic transcription	Pronounced
1.	jujur	/jujUr/	/dudUl/
2.	nyaring	/ɲarŋ/	/nalIn/

From the table above, we can see that respondent B replaces:

- ✚ *apiko alveolar / r /* in final position with *apiko alveolar / l /*, and both *medio palatal / j /* (in initial and medial position) with *apiko palatal / d /* in *jujur / jujUr /* becomes *dudUl /*.
- ✚ *medio palatal / ɲ /* in initial position with *apiko alveolar / n /*, *apiko alveolar / r /* in medial position with *apiko*

*alveolar / l /, and dorsovelar / ŋ / in final position with apiko
alveolar / n / in nyaring / ŋarɪŋ / becomes / nalɪn /.*

6. One sound consonant and one vowel metathesis

Table B.12.

No.	Word	Phonemic transcription	Pronounced
1.	fasih	/ fasɪh /	/ paseh /

From the table above, we can see that respondent B replaces:

- ✚ *labiodental / f / in initial position with bilabial / p /, and
front high lower / ɪ / in medial position with front middle
upper / e / in fasih / fasɪh / becomes / paseh /.*

7. One sound consonant and one diphthong metathesis

Table B.13.

No.	Word	Phonemic transcription	Pronounced
1.	kacau	/ kacaU /	/ kato /

From the table above, we can see that respondent B replaces:

- ✚ *medio palatal / c / in medial position with apikodental / t /,
and up closed backward diphthong / aU / in final position
with back middle upper vowel / o / in kacau / kacaU /
becomes / kato /.*

III. 1. 2. 3. Deletion – Metathesis Alteration

When respondent B speaks, she sometimes deletes and replaces sounds at the same time, either in initial, medial, or final position of the words.

1. One sound consonant deletion and one sound consonant metathesis

Table B.14.

No.	Word	Phonemic transcription	Pronounced
1.	kafir	/ kafɪr /	/ aflɪ /
2.	obat	/ obət /	/ opa /
3.	khilaf	/ xɪlaf /	/ ɪlat /

From the table above, we can see that respondent B:

- ✚ Deletes *dorsovelar* / k / in initial position and replaces *apiko alveolar* / r / in final position with *apiko alveolar* / l / in *kafir* / kafɪr / becomes / aflɪ /.
- ✚ Deletes *apikodental* / t / in final position and replaces *bilabial* / b / in medial position with *bilabial* / p / in *obat* / obət / becomes / opa /.
- ✚ Deletes *dorsovelar* / x / in initial position and replaces *labiodental* / f / in final position with *apikodental* / t / in *khilaf* / xɪlaf / becomes / ɪlat /.

2. One sound consonant deletion and one diphthong metathesis

Table B.15.

No.	Word	Phonemic transcription	Pronounced
1.	pakai	/ pakai /	/ pae /

From the table above, we can see that respondent B:

- ✚ Deletes *dorsovelar* / k / in medial position and replaces *up closed forward diphthong* / ai / in final position with *front middle upper* / e / in *pakai* / pakai / becomes / pae /.

3. One sound consonant deletion and two sounds consonant metathesis

Table B.16.

No.	Word	Phonemic transcription	Pronounced
1.	yakin	/ yakIn /	/ atIt /
2.	devisa	/ devIlsa /	/ eplta /

From the table above, we can see that respondent B:

- ✚ Deletes *medio palatal* / y / in initial position and replaces *dorsovelar* / k / in medial position with *apikodental* / t /, and *apiko alveolar* / n / in final position with *apikodental* / t / in *yakin* / yakIn / becomes / atIt /.
- ✚ Deletes *apiko palatal* / d / in initial position and replaces *labiodental* / v / in medial position with *bilabial* / p /, also replaces *lamino alveolar* / s / in medial position with *apikodental* / t / in *devisa* / devIlsa / becomes / eplta /.

4. One sound consonant deletion and two sounds (one diphthong and one consonant) metathesis.

Table B.17.

No.	Word	Phonemic transcription	Pronounced
1.	saudara	/ saUdara /	/ odala /

From the table above, we can see that respondent B:

- ✚ Deletes *lamino alveolar* / s / in initial position and replaces *up closed backward diphthong* / aU / in medial position with *back middle upper vowel* / o /, also *apiko alveolar* / r / in medial position with *apiko alveolar* / l / in *saudara* /saudara/ becomes / odala /.

5. One sound vowel deletion and two sounds consonant metathesis.

Table B.18.

No.	Word	Phonemic transcription	Pronounced
1.	asyik	/ aʃlk /	/ sl? /

From the table above, we can see that respondent B:

- ✚ Deletes *front low vowel* / a / in initial position, and replaces *lamino palatal* / ʃ / in medial position with *lamino alveolar* / s /, also *dorsovelar* / k / in final position with *glottal* / ? / in *asyik* / aʃlk / becomes / sl? /

6. Two sounds (one consonant and one vowel) deletion and one sound consonant metathesis.

Table B.19.

No.	Word	Phonemic transcription	Pronounced
1.	syarat	/ ʃarat /	/ lat /

From the table above, we can see that respondent B:

- ✚ Deletes *lamino palatal* / ʃ / in initial position and *front low vowel* / a / in medial position, also replaces *apiko alveolar* / r / in medial position with *apiko alveolar* / l / in *syarat* / ʃarat / becomes / lat /.

7. Three sounds (two consonants and one vowel) deletion and one sound consonant metathesis

Table B.20.

No.	Word	Phonemic transcription	Pronounced
1.	cacar	/ cacar /	/ ta /

From the table above, we can see that respondent B:

- ✚ deletes *medio palatal* / c / in initial position, *front low vowel* / a / in medial position, and *apiko alveolar* / r / in final position. Respondent also replaces *medio palatal* / c / in medial position with *apikodental* / t / in *cacar* / cacar / becomes / ta /.

8. Four sounds (two consonants and two vowels) deletion and one sound consonant metathesis

Table B.21.

No.	Word	Phonemic transcription	Pronounced
1.	ikhtisar	/ ixtisar /	/ sal /

From the table above, we can see that respondent B:

- ✚ Deletes both *front high upper vowel / i /* in initial and medial position, *dorsovelar / x /* in medial position, and *apikodental / t /* in medial position. She also replaces *apiko alveolar / r /* in final position with *apiko alveolar / l /* in *ikhtisar / ixtisar /* becomes *sal /*.

III. 1. 3. Respondent C – Rizki Jayanata

When respondent C repeats the words spoken by the writer first, she alters many sounds either in initial, medial, or final position of the words. She makes deletion, insertion, metathesis, or combinations of the three alterations.

III. 1. 3. 1. Deletion

In producing utterances, respondent C rarely deletes sounds. In fact, she only makes deletion alteration for twice in initial position.

1. One sound consonant deletion in initial position

Table C.1.

No.	Word	Phonemic transcription	Pronounced
1.	logam	/logam/	/ogam/

From the table above, we can see that respondent C deletes:

↓ /l/ in *logam* /logam/ becomes /ogam/

Respondent C deletes *apiko alveolar* /l/ in initial position.

III. 1. 3. 2. Insertion

In producing utterances, respondent C mostly makes insertion alteration in initial position.

1. One sound vowel insertion in initial position

Table C.2.

No.	Word	Phonemic transcription	Pronounced
1.	minta	/minta/	/əmintə/
2.	nenek	/nɛnɛk/	/ənɛnɛk/
3.	emas	/əmas/	/əəmas/

4.	otot	/ ɔtɔt /	/ ətɔt /
5.	obat	/ obət /	/ əobat /
6.	saldo	/ saldo /	/ əsaldo /
7.	amboi	/ amboi /	/ əamboi /
8.	yakin	/ yakɪn /	/ əyakɪn /
9.	ngilu	/ ŋɪlu /	/ əŋɪlu /
10.	sehat	/ sehat /	/ əsehat /
11.	ambil	/ ambɪl /	/ əambil /
12.	valuta	/ valuta /	/ əvaluta /
13.	devisa	/ devɪsə /	/ ədevɪsə /

From the table above, we can see that respondent C inserts:

- ✚ / ə / in *minta* / minta / becomes / əminta /
- ✚ / ə / in *nenek* / nɛnɛk / becomes / ənɛnɛk /
- ✚ / ə / in *amas* / əmas / becomes / əəmas /
- ✚ / ə / in *otot* / ɔtɔt / becomes / ətɔt /
- ✚ / ə / in *obat* / obət / becomes / əobat /
- ✚ / ə / in *saldo* / saldo / becomes / əsaldo /
- ✚ / ə / in *amboi* / amboi / becomes / əamboi /
- ✚ / ə / in *yakin* / yakɪn / becomes / əyakɪn /
- ✚ / ə / in *ngilu* / ŋɪlu / becomes / əŋɪlu /
- ✚ / ə / in *sehat* / sehat / becomes / əsehat /
- ✚ / ə / in *ambil* / ambɪl / becomes / əambil /
- ✚ / ə / in *valuta* / valuta / becomes / əvaluta /
- ✚ / ə / in *devisa* / devɪsə / becomes / ədevɪsə /

Respondent C inserts *central middle* / ə / in initial position.

2. Two sounds vowel insertion in initial position

Table C.3.

No.	Word	Phonemic transcription	Pronounced
1.	lampu	/ lampu /	/ əlampu /

From the table above, we can see that respondent C inserts:

✚ two *middle central vowels* / ə / in *lampu* / lampu /
becomes / əlampu /

Respondent inserts *central middle vowels* / ə / in medial position.

III. 1. 3. 3. Metathesis

When respondent C speaks, she sometimes replaces sounds with other sounds in all position of the words.

1. One sound consonant metathesis in initial position

Table C.4.

No.	Word	Phonemic transcription	Pronounced
1.	gelap	/ gəlap /	/ dəlap /

From the table above, we can see that respondent C replaces:

✚ / g / with / d / in *gelap* / gəlap / becomes / dəlap /

Respondent replaces *dorsovelar* / g / with *apiko palatal* / d / in initial position.

2. One sound consonant metathesis in medial position

Table C.5.

No.	Word	Phonemic transcription	Pronounced
1.	udara	/ udara /	/ udala /
2.	lezat	/ lezat /	/ lesat /

From the table above, we can see that respondent C replaces:

✚ / r / in medial position with / l / in *udara* / udara / becomes / udala /.

✚ / z / in medial position with / s / in *lezat* / lezat / becomes / lesat /.

Respondent replaces *apiko alveolar* / r / with *apiko alveolar* /l/, and *lamino alveolar* / z/ with *lamino alveolar* /s/ in medial position.

3. One sound consonant metathesis in final position

Table C.6.

No.	Word	Phonemic transcription	Pronounced
1.	cacar	/ cacar /	/ cacal /

From the table above, we can see that respondent C replaces:

✚ / r / in final position with / l / in *cacar* / cacar / becomes /cacal /.

Respondent replaces *apiko alveolar* / r / with *apiko alveolar* / l / in final position.

4. Two sounds consonant metathesis

Table C.7.

No.	Word	Phonemic transcription	Pronounced
1.	syarat	/ʃarat/	/salat/

From the table above, we can see that respondent C replaces:

- ✚ *lamino palatal* /ʃ/ in initial position with *lamino alveolar* /s/, and *apiko alveolar* /r/ in medial position with *apiko alveolar* /l/ in *syarat* /ʃarat/ becomes /salat/.

5. One sound consonant and one diphthong metathesis

Table C.8.

No.	Word	Phonemic transcription	Pronounced
1.	saudara	/saUdara/	/sodala/

From the table above, we can see that respondent C replaces:

- ✚ *up closed backward diphthong* /aU/ in medial position with *back middle upper vowel* /o/, and *apiko alveolar* /r/ in medial position with *apiko alveolar* /l/ in *saudara* /saUdara/ becomes /sodala/.

6. Three sounds (one consonant and two vowels) metathesis

Table C.9.

No.	Word	Phonemic transcription	Pronounced
1.	turun	/turUn/	/tolon/

From the table above, we can see that respondent C replaces:

- ✚ *back high upper vowel / u / in medial position with back middle upper vowel / o /, apiko alveolar / r / in medial position with apiko alveolar / l /, and back high lower vowel / U / in medial position with back middle upper vowel / o / in turun / turUn / becomes / tolon /.*

III. 1. 3. 4. Deletion – Metathesis Alteration

Respondent C also combines deletion and metathesis alteration in her speech for several times, either in initial, medial, or final position of the words.

1. One sound consonant deletion and one sound consonant metathesis

Table C.10.

No.	Word	Phonemic transcription	Pronounced
1.	kawan	/ kawan /	/ wawa /

From the table above, we can see that respondent C:

- ✚ *deletes apiko alveolar / n / in final position and replaces dorsovelar / k / in initial position with labiodental / w / in kawan / kawan / becomes / wawa /.*

2. One sound consonant deletion and two consonants metathesis

Table C.11.

No.	Word	Phonemic transcription	Pronounced
1.	syekh	/ ʃɛx /	/ sə /

From the table above, we can see that respondent C:

- ✚ deletes *dorsovelar* / x / in final position and replaces *lamino palatal* / ʃ / in initial position with *lamino alveolar* / s /, also replaces *front middle lower* vowel / ε / in medial position with *central middle* vowel / ə / in *syekh* / ʃɛx / becomes / sə /.

3. Two sounds (one consonant and one vowel) deletion and one sound consonant metathesis

Table C.12.

No.	Word	Phonemic transcription	Pronounced
1.	kafir	/ kafɪr /	/ fɪl /

From the table above, we can see that respondent C:

- ✚ deletes *dorsovelar* / k / in initial position and *front low* vowel / a / in medial position, also replaces *apiko alveolar* / r / in final position with *apiko alveolar* / l / in *kafir* /kafɪr/ becomes / kafɪl /.

4. Three sounds (two consonants and one vowel) deletion and one sound consonant metathesis

Table C.13.

No.	Word	Phonemic transcription	Pronounced
1.	ikhtisar	/ ixtisar /	/ isal /

From the table above, we can see that respondent C:

- ✚ deletes *front high upper vowel* / i / in initial position, *dorsovelar* / x / in medial position, and *apikodental* / t / in medial position, also replaces *apiko alveolar* / r / in final position with *apiko alveolar* / l / in *ikhtisar* / *ixtisar* / becomes / *isal* /.

III. 1. 3. 4. Insertion – Metathesis Alteration

As much as her insertions, respondent C makes combinations of insertion and metathesis alterations for many times in all positions of the words.

1. One sound vowel insertion and one sound consonant metathesis

Table C.14.

No.	Word	Phonemic transcription	Pronounced
1.	rame	/ rame /	/ əwame /
2.	ebi	/ ɛbi /	/ əɛpi /
3.	fasih	/ fasɪh /	/ əpasɪh /
4.	jujur	/ jujUr /	/ əjujUl /
5.	asyik	/ aʃɪk /	/ əasɪk /

From the table above, we can see that respondent C inserts:

- ✚ inserts *central middle* / ə / in initial position, and replaces *apiko alveolar* / r / in initial position with *labiodental* / w / in *rame* / *rame* / becomes / *əwame* /.

- ✚ inserts *central middle* / ə / in initial position, and replaces *bilabial* / b / in medial position with *bilabial* / p / in *ebi* / *ɛbi* / becomes / əɛpi /.
- ✚ inserts *central middle* / ə / in initial position, and replaces *labiodental* / f / in initial position with *bilabial* / p / *fasih* / *fasIh* / becomes / əpasIh /.
- ✚ inserts *central middle* / ə / in initial position, and replaces *apiko alveolar* / r / in final position with *apiko alveolar* / l / *jujur* / *jujUr* / becomes / əjujUl /.
- ✚ inserts *central middle* / ə / in initial position, and replaces *lamino palatal* / ʃ / in medial position with *lamino alveolar* / s / in *asyik* / *aʃIk* / becomes / əasIk /.

2. One sound vowel insertion and two sounds (one consonant and one diphthong) metathesis

Table C.15.

No.	Word	Phonemic transcription	Pronounced
1.	kacau	/ kacaU /	/ əkato /

From the table above, we can see that respondent C:

- ✚ inserts *central middle* / ə / in initial position, and replaces *medio palatal* / c / in medial position with *apikodental* / t /, also replaces *up closed backward diphthong* / aU / in final position with *back middle upper vowel* / o / *kacau* / *kacau* / becomes / kato /.

3. One sound vowel insertion and two sounds consonant metathesis

Table C.16.

No.	Word	Phonemic transcription	Pronounced
1.	khilaf	/ xilaf /	/ əpilaf /

From the table above, we can see that respondent C:

- ✚ inserts *central middle* / ə / in initial position, and replaces *dorsovelar* / x / in initial position with *bilabial* / p /, and *labiodental* / f / in final position with *apikodental* / t / *khilaf* / xilaf / becomes / əpilaf /.

4. Two sounds (one vowel and one consonant) insertion and one sound consonant metathesis

Table C.17.

No.	Word	Phonemic transcription	Pronounced
1.	pakai	/ pakai /	/ əpampai /

From the table above, we can see that respondent C:

- ✚ inserts *central middle* / ə / in initial position and *bilabial* / m / in medial position, also replaces *dorsovelar* / k / in medial position with *bilabial* / p / *pakai* / pakai / becomes / əpampai /.

III. 1. 4. Respondent D – Bella Ayu Retno

Respondent D is the only one who makes a few alterations when she repeat those words. In fact, she never deletes any sounds, neither in initial, medial, nor final position of the words. However, she replaces several sounds in all positions, while she only makes once insertion.

III. 1. 4. 1. Metathesis

When respondent speaks, she replaces several sounds with other sounds either in initial, medial, or final position.

1. One sound consonant metathesis in initial position

Table D.1.

No.	Word	Phonemic transcription	Pronounced
1.	rame	/ rame /	/ lame /
2.	syarat	/ ʃarat /	/ sarat /
3.	rakyat	/ raʔyat /	/ laʔyat /

From the table above, we can see that respondent D replaces:

- ✚ / r / with / l / in *rame* / rame / becomes / lame /
- ✚ / ʃ / with / s / in *syarat* / ʃarat / becomes / sarat /
- ✚ / r / with / l / in *rakyat* / raʔyat / becomes / laʔyat /

Respondent D replaces *apiko alveolar* / r / with *apiko alveolar* / l /, and *lamino palatal* / ʃ / with *lamino alveolar* / s / in initial position.

2. One sound consonant metathesis in medial position

Table D.2.

No.	Word	Phonemic transcription	Pronounced
1.	saudara	/ saUdara /	/ saUdala /
2.	nyaring	/ ñariŋ /	/ ñaliŋ /

From the table above, we can see that respondent D replaces:

✚ / r / with / l / in *saudara* / saUdara / becomes / saUdala /

✚ / r / with / l / in *nyaring* / ñariŋ / becomes / ñaliŋ /

Respondent D replaces *apiko alveolar* / r / with *apiko alveolar* / l / in medial position.

3. One sound consonant metathesis in final position

Table D.3.

No.	Word	Phonemic transcription	Pronounced
1.	kafir	/ kafɪr /	/ kafɪl /
2.	emas	/ əmas /	/ əmat /

From the table above, we can see that respondent D replaces:

✚ / r / with / l / in *kafir* / kafɪr / becomes / kafɪl /

✚ / s / with / t / in *emas* / əmas / becomes / əmat /

Respondent D replaces *apiko alveolar* / r / with *apiko alveolar* / l /, *lamino alveolar* / s / with *apikodental* / t / in final position.

III. 1. 4. 2. Insertion – Metathesis Alteration

When respondent D speaks, she only makes one combination of insertion and metathesis alteration.

1. One sound vowel insertion and one sound consonant metathesis

Table D.4.

No.	Word	Phonemic transcription	Pronounced
1.	khilaf	/ xilaf /	/ kialaf /

From the table above, we can see that respondent D:

- ✚ inserts *front low vowel* / a / in medial position, and replaces *dorsovelar* / x / in initial position with *dorsovelar* / k / in *khilaf* / xilaf / becomes / kialaf /.

III. 1. 5. Respondent E – Anita Carolina

When respondent E repeats the words spoken by the writer first, she often alters sounds in all position of the words (initial, medial, or final).

III. 1. 5. 1. Deletion

In producing utterances, she sometimes deletes sounds, either in initial, medial or final position of the words.

1. One sound consonant deletion in medial position

Table E.1.

No.	Word	Phonemic transcription	Pronounced
1.	enak	/ enak /	/ eak /
2.	lampu	/ lampu /	/ lapu /

From the table above, we can see that respondent E deletes:

✚ / n / in *enak* / enak / becomes / eak /

✚ / m / in *lampu* / lampu / becomes / lapu /

Respondent E deletes *dorsovelar* / k /, *apiko alveolar* / n /, and *bilabial* / m / in medial position.

2. One sound consonant deletion in final position

Table E.2.

No.	Word	Phonemic transcription	Pronounced
2.	jujur	/ jujur /	/ juju /

From the table above, we can see that respondent E deletes:

✚ / r / in *jujur* / jujur / becomes / juju /

Respondent E deletes *apiko alveolar* / r / in final position.

3. One sound consonant and one sound vowel deletion

Table E.3.

No.	Word	Phonemic transcription	Pronounced
1.	nenek	/ nɛnɛ? /	/ nɛn /
2.	gelap	/ gɛlap /	/ lap /

From the table above, we can see that respondent E deletes:

- ✚ *glottal / ? /* in final position and *front middle lower vowel / ɛ /* in medial position in *nenek / nɛnɛk /* becomes */ nɛn /*.
- ✚ *dorsovelar / g /* in initial position and *central middle vowel / ə /* in medial position in *gelap / gɛlap /* becomes */ lap /*.

III. 1. 5. 2. Insertion

Respondent E rarely makes an insertion when she speaks. In fact, she only makes an insertion once in initial position.

1. One sound vowel insertion before the initial position

Table E.4.

No.	Word	Phonemic transcription	Pronounced
1.	amboi	/ amboi /	/ əamboi /

From the table above, we can see that respondent E inserts:

- ✚ *central middle vowel / ə /* in initial position of *amboi /amboi/* becomes */ əamboi /*.

III. 1. 5. 3. Metathesis

Most of all alterations she has make is metathesis, where she replaces many sounds in all positions of the words.

1. One sound consonant metathesis in initial position

Table E.5.

No.	Word	Phonemic transcription	Pronounced
1.	rame	/ rame /	/ lame /
3.	saldo	/ saldo /	/ zaldo /
4.	faslh	/ faslh /	/ paslh /
5.	zat	/ zat /	/ jat /
6.	cacar	/ cacar /	/ tacar /

From the table above, we can see that respondent E replaces:

- ✚ / r / with / l / in *rame* / rame / becomes / lame /
- ✚ / s / with / z / in *saldo* / saldo / becomes / zaldo /
- ✚ / f / with / p / in *fasih* / faslh / becomes / paslh /
- ✚ / z / with / j / in *zat* / zat / becomes / jat /
- ✚ / c / with / t / in *cacar* / cacar / becomes / tacar /

Respondent E replaces *apiko alveolar* / r / with *apiko alveolar* / l /, *lamino alveolar* / s / with *lamino alveolar* / z /, *labiodental* / f / with *bilabial* / p /, *lamino alveolar* / z / with *medio palatal* / j /, and *medio palatal* / c / with *apikodental* / t / in initial position.

2. One sound consonant metathesis in medial position

Table E.6.

No.	Word	Phonemic transcription	Pronounced
1.	udara	/ udara /	/ udala /
2.	sunyi	/ suñi /	/ suni /

From the table above, we can see that respondent E replaces:

✚ / r / with / l / in *udara* / udara / becomes / udala /

✚ / ñ / with / n / in *sunyi* / suñi / becomes / suni /

Respondent E replaces *apiko alveolar* / r / with *apiko alveolar* / l /, and *medio palatal* / ñ / with *apiko alveolar* / n / in medial position.

3. One sound consonant metathesis in final position

Table E.7.

No.	Word	Phonemic transcription	Pronounced
1.	emas	/ əmas /	/ əmah /
2.	otot	/ ɔtɔt /	/ ɔtɔk /
3.	kawan	/ kawan /	/ kawat /
4.	halus	/ halus /	/ halut /
5.	sehat	/ sehat /	/ sehak /

From the table above, we can see that respondent E replaces:

✚ / s / with / h / in *emas* / əmas / becomes / əmah /

✚ / t / with / k / in *otot* / ɔtɔt / becomes / ɔtɔk /

✚ / n / with / t / in *kawan* / kawan / becomes / kawat /

✚ / s / with / t / in *halus* / halus / becomes / halut /

✚ / t / with / k / in *sehat* / sehat / becomes / sehak /

Respondent E replaces *lamino alveolar / s /* with *laringeal / h /*, *apikodental / t /* with *dorsovelar / k /*, *apiko alveolar / n /* with *apikodental / t /*, *lamino alveolar / s /* with *apikodental / t /*, and *apikodental / t /* with *dorsovelar / k /* in final position.

4. Two sounds consonant metathesis

Table E.8.

No.	Word	Phonemic transcription	Pronounced
1.	turun	/ turUn /	/ tulUt /
2.	syekh	/ ʃɛx /	/ tɛh /

From the table above, we can see that respondent E replaces:

- ✦ *apiko alveolar / r /* in medial position with *apiko alveolar / l /*, and *apiko alveolar / n /* in final position with *apikodental / t /* in *turun / turUn /* becomes */ tulUt /*.
- ✦ *lamino palatal / ʃ /* in initial position with *apikodental / t /* and *dorsovelar / x /* in final position with *laryngeal / h /* in *syekh / ʃɛx /* becomes */ tɛh /*.

5. One sound consonant and one sound vowel metathesis

Table E.9.

No.	Word	Phonemic transcription	Pronounced
1.	asyik	/ aʃlk /	/ atək /

From the table above, we can see that respondent E replaces:

- ✚ *lamino palatal* / ʃ / in medial position with *apikodental* / t / ,
and *front high lower* / I / in medial position with *central middle* / ə / in *asyik* / aʃIk / becomes / atək / .

6. One sound vowel and one sound diphthong metathesis

Table E.10.

No.	Word	Phonemic transcription	Pronounced
1.	pakai	/ pakai /	/ pəkɛ /

From the table above, we can see that respondent E replaces:

- ✚ *front low vowel* / a / in medial position with *front middle lower vowel* / ɛ / , and *up closed forward diphthong* / ai / in final position with *front middle lower vowel* / ɛ / in *pakai* / pakai / becomes / pəkɛ / .

III. 1. 5. 4. Deletion – Insertion Alteration

Respondent E combines deletion and insertion alterations for three times.

1. One sound consonant deletion and one vowel insertion

Table E.11.

No.	Word	Phonemic transcription	Pronounced
1.	kafir	/ kafɪr /	/ əʃfɪl /
3.	logam	/ logam /	/ əogam /

From the table above, we can see that respondent E:

- ✚ deletes *dorsovelar* / k / in initial position and inserts *central middle* / ə / in initial position of *kafir* / kafɪr / becomes / əaffɪ /.
- ✚ deletes *apiko alveolar* / l / in initial position and inserts *central middle* / ə / in initial position of *logam* /logam/ becomes /eogam/.

III. 1. 5. 5. Deletion – Metathesis Alteration

As well as her deletions and metathesis, her combination of both alterations is involving many sounds in all positions of the words.

1. One sound consonant deletion and one consonant metathesis

Table E.12.

No.	Word	Phonemic transcription	Pronounced
1.	valuta	/ valuta /	/ pauta /

From the table above, we can see that respondent E:

- ✚ deletes *apiko alveolar* / l / in medial position and replaces *labiodental* / v / in initial position with *bilabial* / p / in *valuta* / valuta / becomes / pauta /.

2. One sound consonant deletion and two sounds consonant metathesis

Table E.13.

No.	Word	Phonemic transcription	Pronounced
1.	nyaring	/ ñarɪŋ /	/ kall /

From the table above, we can see that respondent E:

- ✚ deletes *dorsovelar* / ŋ / in final position and replaces *medio palatal* / ñ / in initial position with *dorsovelar* / k /, also replaces *apiko alveolar* / r / in medial position with *apiko alveolar* / l / in *nyaring* / ñarŋ / becomes / kall /.

3. One sound consonant deletion and one vowel metathesis

Table E.14.

No.	Word	Phonemic transcription	Pronounced
1.	minta	/ minta /	/ mena /
2.	lezat	/ læzat /	/ læze /

From the table above, we can see that respondent E:

- ✚ deletes *apikodental* / t / in medial position and replaces *front high upper* / i / in medial position with *front middle upper* / e / in *minta* / minta / becomes / mena /.
- ✚ deletes *apikodental* / t / in final position and replaces *front low vowel* / a / in medial position with *front middle upper vowel* / e / in *lezat* / læzat / becomes / læze /.

4. One sound consonant deletion and two sounds (one diphthong and one consonant)

Table E.15.

No.	Word	Phonemic transcription	Pronounced
1.	kacau	/ kacaU /	/ atə /
2.	saudara	/ saUdara /	/ odala /

From the table above, we can see that respondent E:

- ✚ deletes *dorsovelar* / k / in initial position and replaces *medio palatal* / c / in medial position with *apikodental* / t /, also replaces *up closed backward* / aU / in final position with *central middle* / ə / in *kacau* / kacaU / becomes / atə /.
- ✚ deletes *lamino alveolar* / s / in initial position, replaces *up closed backward diphthong* / aU / in medial position with *back middle upper vowel* / o /, and replaces *apiko alveolar* / r / with *apiko alveolar* / l / in *saudara* / aUdara / becomes / odala /.

5. Two sounds consonant deletion and one sound consonant metathesis

Table E.16.

No.	Word	Phonemic transcription	Pronounced
1.	ambil	/ ambll /	/ apl /
2.	devisa	/ devisa /	/ epia /
3.	rakyat	/ ra?yat /	/ akat /

From the table above, we can see that respondent E:

- ✚ deletes *bilabial* / m / in medial position and *apiko alveolar* / l / in final position, also replaces *bilabial* / b / in medial position with *bilabial* / p / in *ambil* / ambll / becomes / apl /.
- ✚ deletes *apiko palatal* / d / in initial position and *lamino alveolar* / s / in medial position, also replaces *labiodental*

/ v / in medial position with *bilabial* / p / in *devisa* / devlsa / becomes / epIa /.

✚ deletes *apiko alveolar* / r / in initial position and *medio palatal* / y / in medial position, also replaces *glottal* / ? / with *dorsovelar* / k / in *rakyat* / ra?yat / becomes / akat /.

- Two sounds (one vowel and one consonant) deletion and two sounds consonant metathesis.

Table E.17.

No.	Word	Phonemic transcription	Pronounced
1.	syarat	/ʃarat /	/sal /

From the table above, we can see that respondent E:

✚ deletes *front low vowel* / a / in medial position and *apikodental* / t / in final position. She also replaces *lamino palatal* / ʃ / in initial position with *lamino alveolar* / s /, and *apiko alveolar* / r / in medial position with *apiko alveolar* / l / in *syarat* / ʃarat / becomes / sal /.

- Three sounds (one vowel and two consonants) deletion and two sounds consonant metathesis.

Table E.18.

No.	Word	Phonemic transcription	Pronounced
1.	ikhtisar	/ixtisar /	/ital /

From the table above, we can see that respondent E:

- ✚ deletes *dorsovelar* / x / in medial position, *apikodental* / t / in medial position, and *front high upper* / i / in medial position. She also replaces *lamino alveolar* / s / in medial position with *apikodental* / t /, and *apiko alveolar* / r / in final position with *apiko alveolar* / l / in *ikhtisar* / *ixtisar* / becomes / ital /.

III. 1. 5. 6. Deletion – Insertion – Metathesis Alteration

Respondent E is the only one who combines the three main kinds of phonological alterations (deletion, insertion, and metathesis) although she only makes it once.

1. One sound consonant deletion, one sound vowel insertion, and one sound consonant metathesis

Table E.19.

No.	Word	Phonemic transcription	Pronounced
1.	khilaf	/ xilaf /	/ əilap /

From the table above, we can see that respondent E:

- ✚ deletes *dorsovelar* / x / in initial position, inserts *central middle* / ə / in initial position of *khilaf* / *xilaf* /, and also replaces *labiodental* / f / in final position with *bilabial* / p / becomes / əilap /.

III. 2. DATA ANALYSIS

Based on data presentations above, the research towards those five respondents as Cerebral Palsied children has evidently found many types of phonological alterations that are produced when they made repetitions of the words.

III. 2. 1. Respondent A – Ingrid Christanti

From the data described above, we can see that respondent A never deletes any phonemes in each position of the words (initial, medial, and final). This is an evidence that respondent A, concerning deletion alteration, can pronounce phonemes well.

The data also show a lot of metathesis made by respondent A, which occur in any possible position of the words (initial, medial, and final). She replaces many consonant sounds either in initial, medial, or final position of the words. Most of them are *apiko alveolar /r/* that are replaced by *apiko alveolar /l/* for 8 times. Both */r/* and */l/* are produced in the same way. However, respondent A prefers to replace */r/* with */l/*, since */r/* is more difficultly pronounced when she has to trill the tip of the tongue to the alveolar ridge for a couple time, rather than sound */l/* which is only produced by touching her tip of the tongue to the alveolar ridge. Other *apiko alveolar* sounds that are replaced by respondent A are */n/* with apikodental */t/* for twice (in final position), *apiko alveolar /r/* in final position with laringal */h/* for once, and *apiko alveolar /r/* in medial position with medio palatal */y/* for once. Sound */r/* is considered as “difficult” phoneme and distinguished among the last type of sounds that articulated correctly by

children. Replacement of /r/ with /y/ is also an evidence of *liquid vowelization* since /y/ is semi-vowel in Indonesian language.

Moreover, she replaces *dorsovelar* sounds for 3 times, which are: *dorsovelar* /ŋ/ with apiko alveolar /n/ for once in final position, *dorsovelar* /x/ with dorsovelar /k/ for once in initial position, *dorsovelar* /x/ with laringeal /h/ for once in final position. Dorsovelars are also considered as “difficult” phonemes since they are included in “back” consonants. In fact, respondent A tends to replace them in any possible position of the words. Replacement of /ŋ/ with /n/ is an evidence of *fronting*, that is replacement of velar sounds with alveolar.

She also replaces *lamino alveolar* /s/ twice with apikodental /t/ and replaces *lamino alveolar* /z/ once with lamino alveolar /s/. Lamino alveolars are more difficultly pronounced since they involve more muscles of the tip and the blade of the tongue, rather than apikodental which only involves the muscles of tongue tip. Replacements of /s/ with /t/ are also phonological processes called *stopping* in which fricative becomes stops. On the other hand, replacement of /z/ with /s/ is also called as *devoicing* process. Besides, she replaces *bilabial* /b/ twice with bilabial /p/. These are cues of *devoicing* process, too.

She also replaces *labiodental* /f/ twice, first with bilabial /p/ and then with apikodental /t/. However, labiodental /f/ is considered as sound which tends to be produced later after bilabial. Both replacements are somehow also included in *stopping*. Moreover, *lamino patalal* /ʃ/ is replaced twice, both with lamino alveolar /s/. However, lamino alveolars are more easily pronounced

since they only involve the tip of the tongue, rather than lamino palatal which has to raise the blade of the tongue to the alveolar ridge. Replacements of /ʃ/ with /s/ are also cues of *fronting* process. While *medio palatal* /c/ is replaced once with apikodental /t/. The last is *medio palatal* /ñ/ that is replaced once with apiko alveolar /n/, which is also included in *fronting* process. *Medio palatals* are also considered as “difficult” sounds since they must be produced by involving the middle part of the tongue and the back part of the palate, rather than apikodental and apiko alveolars which involve the front part of the tongue to produce them.

She replaces diphthong sound only once, that is *up closed backward* /aU/ in medial position with *middle upper back* vowel /o/. Other diphthongs are not replaced or exchanged either in initial, medial or final position of the words. She also never replaces vowel sounds neither in initial, medial, nor in final position of the words.

Even though there are many alterations concerning deletion and metathesis of phonemes, there is no case of insertion that can be found in respondent A's speech, either in initial, medial, or final position of the words.

There are some cases that respondent A replaces two even three phonemes at the same time. For instance, in pronouncing the word *nyaring*, she replaces /ñ/ with /n/, /r/ with /l/, and /ŋ/ with /n/. Concerning deletion-metathesis alteration, there is only one case that she combines both alterations at the same time, in which she deletes *dorsovelar* /x/ and replaces *apiko alveolar* /r/ with apiko alveolar /l/ in *ikhtisar* /ixtisar/ then it becomes /tisal/. Yet, there is no

case of deletion-insertion or insertion-metathesis alterations that can be found in her speech since she never adds new phonemes.

III. 2. 2. Respondent B – Dinda Putri Rahmawati

From the data presented above, we can see that respondent B makes deletion alteration of consonant sounds for many times either in initial, medial, or final position of the words. Most of them are *dorsovelars* (for 8 times), which are dorsovelar /k/ for 4 times (twice in initial, once in medial and once in final position), /x/ for twice (in initial and medial position), /ŋ/ for once (in medial position), and dorsovelar /g/ in initial position for once. This evidence shows that dorsovelars are difficultly pronounced phonemes since they are distinguished as *back* sounds. In fact, respondent B deletes them in almost all positions of the words for each sound.

Moreover, she deletes *lamino alveolars* for 6 times, which are lamino alveolar /s/ for 4 times (3 times in initial and once in final position) and lamino alveolar /z/ for twice (once in initial and once in medial position). It is noticeable that lamino alveolars are quite difficultly pronounced, since she has to raise both tip and blade of the tongue to the alveolar ridge.

She also deletes *apiko alveolars*, which are /r/ for once in initial position, and /l/ for 3 times (twice in initial position, once in medial position). Apiko alveolar /r/ and /l/ are among “difficult” phonemes which are usually acquired later. Interestingly, she also deletes /n/ for 3 times (once in initial and twice in final position), although /n/ is among “easy” phonemes usually acquired former.

Medio palatal /c/ in initial position is deleted once, whereas medio palatal /y/ in initial position is deleted once, too. *Apiko palatal /d/* in initial position is deleted once, while *lamino palatal /ʃ/* in initial position is deleted once. Medio palatal, apiko palatal, or lamino palatal are all produced farther in the back of the mouth, so that they can be distinguished as “difficult” phonemes.

More interesting point that can be viewed in respondent B is that she also deletes easily pronounced phonemes, which are mostly produced by involving front parts of the tongue and mouth. For instance, she deletes *apikodental /ʋ* 3 times (twice in final and once in medial position). She deletes vowels in initial position twice (*low front /a/* and *high front /i/*) and also deletes vowels in medial position 6 times, which are; *low front /a/* for 4 times (once in initial position and 3 times in medial position); *middle front /e/* for once in medial position; *high front /i/* for twice (in initial and medial position), and *middle central /ə/* for once in medial position. She does not delete other vowels in final position of the words. Even though she frequently deletes vowels in producing her utterances, she never deletes diphthongs either in initial, medial, nor final position of the words. In addition, the writer also finds other phonological processes called *deletion of stressed syllable* for three times and *deletion of unstressed syllable* for twice. For instance, respondent B deletes the first stressed syllable of *saldo* then it becomes /do/, and deletes the first unstressed syllable in *sehat* then it becomes /hat/.

The data also show metathesis alterations made by respondent B. A general line can be drawn that she replaces many consonant sounds in any

possible positions: initial, medial, or final position of the words. Most of them are *apiko alveolars*, for instance, she constantly replaces /r/ by apiko alveolar /l/ (for 9 times: once in initial, 5 times in medial, and in 3 times final position). Both /r/ and /l/ are *apiko alveolars*, which are produced in the same way. However, respondent B prefers to replace /r/ with /l/, since /r/ is more difficultly pronounced when she has to trill her tip of the tongue to the alveolar ridge fast, rather than sound /l/ which is only produced by touching the tip of the tongue to the alveolar ridge. Another replaced apiko alveolar sound is /n/ for 3 times, which is once in medial position with dorsovelar /ŋ/, once in final position with apiko alveolar /l/, and once in final position with apikodental /t/. In fact, /l/ and /t/, as well as /n/, are among front consonants, but respondent B prefers to exchange these sounds one and another when she cannot produce apiko alveolar /n/. On the other hand, the replacement of /n/ with /ŋ/ is an evidence of *backing* process, in which alveolar sound is replaced by velar. While apiko alveolar /l/ is once replaced by labiodental /w/ in medial position, which is pronounced easier by involving the frontier parts of the mouth.

Moreover, she replaces *medio palatal* sounds for 7 times, which are: /ñ/ is replaced by apiko alveolar /n/ for twice (both in initial and in medial position); /c/ is replaced by apikodental /t/ for 3 times (in initial for once and in medial position for twice); /j/ is replaced by apiko palatal /d/ twice (both in initial and in medial position). Based on their place of articulation, medio palatals are produced by involving the middle part of the tongue and the hard palate. Thus, they may be considered as ‘difficult’ phonemes. In fact, all of

them are replaced by phonemes that are produced by involving the frontier parts of the tongue and mouth. In addition, the replacements of /ɲ/ with /n/, and /c/ with /t/ are also considered as *fronting* processes, in which palatal sounds are replaced by alveolar and dental sounds.

As well as respondent A, respondent B also replaces a number of *dorsovelar* sounds, which are: /ŋ/ is replaced by apiko alveolar /n/ twice (in initial and in final position); /ŋ/ in final position is once replaced by laryngeal /h/; /k/ is once replaced in medial position by apikodental /t/; and /x/ in final position is once replaced by laryngeal /h/. However, dorsovelars are considered as ‘difficult’ phonemes since they are “back” consonants. *Fronting* processes can also be found here when velar sounds are replaced by alveolar (/n/) and dental (/t/) sounds.

On the other hand, *lamino alveolar* /s/ is replaced twice by apikodental /t/ (in medial and final position). *Lamino alveolar* /s/ is considered to be acquired later than apikodental /t/. Both replacements are also included in *stopping*, since /s/ is fricative and /t/ is stop. *Lamino palatal* /ʃ/ is also once replaced by lamino alveolar /s/ in initial position. *Lamino palatal* is produced involving the back parts of the mouth (hard palate and the back of the alveolar ridge). This sound is among back consonants, which are then replaced by the frontier one. Thus, this process is also called as *fronting*.

It is interesting that respondent B also replaces easily pronounced phoneme which is considered to be acquired earlier than the more difficult ones, such as *apikodental* /t/ that is once replaced by dorsovelar /k/ in medial position.

This replacement is an evidence of *backing*, since dental sound is replaced by velar.

She also replaces *labiodental* sounds for 3 times, they are: /f/ is replaced by bilabial /p/ (in initial position) and replaced by voiceless apikodental /t/ (in final position); while labiodental /v/ is replaced once with bilabial /p/ in medial position. These replacements are included in *stopping* processes, since /f/ and /v/ are fricatives which are replaced by stops (/p/ and /t/). Besides, the writer also finds *devoicing* processes when voiced bilabial /b/ is replaced by voiceless bilabial /p/ twice (both in medial position).

Diphthong sounds are replaced for 3 times, which are: *up backward* /aU/ with middle back /o/ for twice (in medial and final position), and *up forward* (ai) with middle front /e/ for once in final position. Vowel, which is considered to be acquired before consonant sounds is only replaced once, that is *high lower front* /I/ in medial position by middle upper front /e/.

In altering these phonemes, respondent B often deletes and or replaces two or more sounds at the same time. For instance, the word *ikhtisar* /ixtisar/ becomes /sal/ since she deletes four sounds (two consonants and two vowels) and also replaces one consonant. Furthermore, there is no evidence that she inserts phonemes in any possible positions of the words. Consequently, there is no deletion-insertion or insertion-metathesis alteration made by respondent B. She only combines deletion and metathesis alteration for several words.

III. 2. 3. Respondent C – Rizki Jayanata

From the data described above, we can see that deletion alteration of respondent C only once occurs in initial position, that is *apiko alveolar /l/*. She never deletes any vowel or diphthong sounds in any possible positions of the words. Moreover, she combines deletion and metathesis alterations at the same time for four times. Interestingly, the deleted or replaced sounds may consist of two or more sounds in a word. Three of these combinations are special cases at which the writer can find syllable structure processes. For instance, in *ikhtisar /ixtisar/* becomes */isal/*. Apparently, we can see that she *deletes the first stressed syllable* since it is too difficult for her. This process is also a cue that she actually finds difficulties in pronouncing consonant sounds after the stressed syllable. In fact, she prefers to omit */t/* that is preceded by the stressed syllable */ix/*. Another case is deletion of final consonant and *reduplication* found in *kawan /kawan/* becomes */wawa/*. In fact, she prefers to delete *apiko alveolar /n/*, which then reduplicate the rest syllable */wa/* becomes */wawa/*. Moreover, in *kafir /kafɪr/*, she also *deletes the first unstressed syllable /ka/* and replaces *apiko alveolar /r/* with *apiko alveolar /l/*, then it becomes */fɪl/*. *Fronting* is found when she replaces *lamino palatal /ʃ/* with *lamino alveolar /s/* in *syekh /ʃɛx/* then it becomes */sə/*.

In her metathesis alteration, she also gives some cues that she cannot produce *dorsovelar* sounds well. In fact, she replaces */g/* with *apiko palatal /d/* once in initial position. *Fronting* can be found when she replaces */k/* with *labiodental /w/* once in initial position, and replaces */x/* with *bilabial /p/* once in

initial position. Both are evidence that she prefers to produce frontier sounds (e.g., labials) rather than those which are produced farther in the back of the vocal tract (e.g., velars). Moreover, there is also an evidence of *labial assimilation* when she replaces /k/ with bilabial /p/ in medial position of *pakai* /pakai/ becomes /pampai/. Labial assimilation occurs when non-labial sounds are replaced by labial sounds, either preceding or following labial consonants.

As the two previous respondents, respondent C cannot produce *apiko alveolar /r/* well, too. In fact, she replaces it 8 times with apiko alveolar /l/ either in initial, medial, or final position of the words. These are cues that her muscles are too weak to produce this sound, since she has to raise and trill her tip of the tongue to the alveolar ridge. Apiko alveolar /r/ is also once replaced by labiodental /w/ in initial position. However, sounds produced with tongue involvement are more difficult than sounds produced with labial involvement. This replacement is also called as *liquid vowelization*, since /w/ is among semi-vowel sounds in Indonesian language.

Lamino alveolar /z/ is once replaced with lamino alveolar /s/ in medial position. This is evidence that she prefers to use voiceless sound rather than voiced sound. Another evidence of *devoicing* is the replacement of voiced *bilabial /b/* with voiceless bilabial /p/.

Other cue of *stopping* is replacements of *labiodental /f/* with bilabial /p/ and with apikodental /t/. In this case, fricative /f/ is replaced by stops (/p/ and /t/). The last is an evidence of *fronting*, in which *medio palatal /c/* is once replaced by apikodental /t/ in medial position. However, frontier sound (dental) is easier

to be pronounced rather than palatal sound, which is produced farther in the back of the vocal tract.

On the other hand, she can pronounce vowel and diphthong sounds quite well. In fact, she only twice replaces *back high lower /u/* with back middle upper vowel /o/ both in medial position, and once replaces *front middle lower /ɛ/* with front middle upper /e/ in medial position. She does not replace other vowel sounds in any possible positions of the words. *Up closed backward diphthong* is replaced twice in medial and final position, both by back middle upper vowel /o/. Other diphthongs are not altered in any possible positions of the words.

The most interesting thing in her repetitions is that she makes 22 times insertion alterations in initial position of the words. All of these insertions are vowel sounds (*middle central /ə/*), which are put before the initial position of the words. She does not insert other vowel sounds in medial or in final position of the words. She does not also make any insertion alterations of consonant and diphthong sounds either in initial, medial, nor final position of the words. Based on these data, the writer tries to make an interpretation that respondent C inclines to insert middle central /ə/ in order to ease her speech. The difficulty may be caused by the tightness of her muscles, especially those surrounds her vocal tract. Thus, she may loose them by adding /ə/ before utter any words in which the initial sound is considered difficult for her.

From the data above, we can see that respondent C sometimes combines two alterations (deletion and metathesis, or insertion and metathesis) in uttering

one word. She does not only alter single sound in one word, even she often alters two or more sounds of one word.

III. 2. 4. Respondent D – Bella Ayu Retno

Respondent D is the only one who can produce utterances quite well, rather than other respondents. Most of the repeated words are correctly produced. In fact, she never deletes any vowel, diphthong, or even consonant sounds neither in initial, medial, nor in final position of the words. She only makes one vowel insertion, that is *low front /a/* in medial position of *khilaf* /xilaf/ which then becomes /xialaf/. However, this is not an enough evidence to judge that she tends to insert /a/ in order to ease the pronunciation of any difficult sounds preceding or following it, as well as in the case of respondent C. This insertion is distinguished as individual problem concerning interpretation of a word, rather than as a cue of phonological process disorder occurred in cerebral palsied children.

However, she makes a number of metathesis alterations of consonant sounds either in initial, medial, or in final position. Most of them are *apiko alveolar /r/* which is replaced with *apiko alveolar /l/* (twice in initial, twice in medial, and once in final position). As the three respondents above, the phoneme acquisition of respondent D has not complete yet since /r/ is considered as the most difficult and the latest sound that may be correctly produced.

Moreover, she replaces *lamino palatal /ʃ/* with *lamino alveolar /s/* in initial position. However, sounds produced by involving lips, front teeth and

alveolar ridge are easier to pronounce rather than those which are produced by involving velar and palate. Thus, this process is also called as *fronting*. While the replacement of *lamino alveolar /s/* by apikodental /t/ in final position is an evidence that she prefers to produce apikodental instead of lamino alveolar, even though both sounds are among front consonants. This is also called as *stopping* since she produces stops instead of fricatives.

In addition, *dorsovelar /x/* is once replaced in initial position by dorsovelar /k/. As well as /r/, /j/ and /s/, dorsovelar /x/ is also included into “difficult” phonemes of Indonesian language. She does not replace any vowel or diphthong sounds in her repetitions, neither in initial, medial, nor in final position of the words. She combines insertion and metathesis alteration once, while other combination of other phonological alterations cannot be found in her utterances. Furthermore, she only once alters two phonemes at the same time within one word, while the others are one phoneme in one word.

III. 2. 5. Respondent E – Anita Carolina

From the data presented above, we can see that respondent D makes deletion alteration of consonant sounds for many times either in initial, medial, or final position of the words. Most of them were *dorsovelar* and *apiko alveolar*. Dorsovelar is deleted for 6 times, which were: dorsovelar /k/ is deleted twice (both in initial position); dorsovelar /g/ is deleted once in initial position; dorsovelar /ŋ/ is deleted twice (both in final position); dorsovelar /x/ is deleted once in final position. Apiko alveolar /r/ is deleted twice (in initial and final

position), /l/ is deleted 3 times (in initial, medial, and final position), while /n/ is deleted once in medial position.

Other “difficult” phonemes also deleted by respondent E are *lamino alveolar* /s/ for twice (in initial and medial position), *apiko palatal* /d/ once in initial position. Palatal sounds are among back sounds which are more difficult to produce than frontier sounds which involves fewer muscles of vocal tract. The last is *glottal* /ʔ/ deletion once in final position. In addition, the writer also finds *deletion of first stressed syllable* in *gelap* /gəlap/ then it becomes /lap/, and *deletion of the first unstressed syllable* in *nenek* /nɛnɛk/ then it becomes /nɛn/.

Interestingly, respondent E also deletes several sounds which are considered as “easy” phonemes in Indonesian language. Vowels should be the easiest sounds to be acquired, but respondent E somehow once deletes *front low* /a/ in medial position, *front middle lower* /ɛ/ (in medial), *central middle* /ə/ (in medial), and *front high upper* /i/ (in medial position). Others are deletions of *bilabial* sounds /m/ (twice in medial position), semi-vowel or *medio palatal* /y/ (in medial position), and *apikodental* /t/ (twice in medial and twice in final position). She never deletes any diphthongs in any possible position of the words.

Respondent E makes insertion alteration four times in her repetition, all of them are *central middle* /ə/ before the initial position of the words. In Indonesian language, *central middle* /ə/ is among lenis (soft) sounds which are produced without any hard or strong air stream. Two insertions occur before dorsovelar sounds /k/ and /x/. One insertion occurs before apiko alveolar /l/.

These phonemes are considered as “difficult” phonemes, so it can be easily judged that respondent E producing central middle /ə/ first in order to ease the production of the next “difficult” sounds. Interestingly, she also inserts /ə/ before *front low* vowel /a/. The writer give an interpretation that since it is difficult for her to open her mouth suddenly to utter the word, she prefers to start it with producing /ə/ first. She does not insert other vowels, even diphthongs and consonant sounds in initial, medial, or final position of the words.

In producing utterances, she often replaces sounds either consonant, vowel, or diphthong sounds in any possible position of the words. Most of them are *apiko alveolar* /r/ which are constantly replaced by *apiko alveolar* /l/ for eight times (once in initial, six times in medial, and once in final position). As well as the four previous respondents, respondent E also shows evidence that the most difficult phonemes to produce is /r/ since she has to trill the tip of the tongue to the alveolar ridge for a couple times to produce it, and it involves a lot and strong muscles, while cerebral palsied children has problems with motor coordination which affect the strength and respond of muscles, especially surrounds the vocal tract.

The next “difficult” phonemes that are replaced by respondent E are *lamino alveolar* /s/. It is once replaced with *lamino alveolar* /z/ in initial position. This process is called as *voicing*. The replacements of *lamino alveolar* /s/ with *apikodental* /t/ twice (in medial and final position) are evidence of *stopping*. In fact, instead of producing continuants, she prefers to produce stops. Moreover, she replaces it with *laryngeal* /h/ once (in final position). /h/ is

somehow easier to pronounce since it only involves the vocal cords, not any parts of the tongue. Dorsovelar sounds which is considered as “difficult” phoneme is only once replaced, that is /x/ with laryngeal /h/ in final position.

In addition, respondent E also makes replacements of *apiko alveolar* /n/ with apikodental /t/ twice (both in final position). These are another evidence of *stopping*. Furthermore, she makes more *voicing* and *devoicing* processes in her metathesis alterations. Once replacement of *bilabial* /b/ with bilabial /p/ is evidence of devoicing process, whereas replacements of *apikodental* /t/ with dorsovelar /k/ for twice are evidence of voicing processes.

Besides, she also replaces *labiodental* /f/ and /v/ with bilabial /p/ for four times. This *stopping* process shows that instead of producing fricatives (/f/ and /v/), respondent E prefers to produce stops (/p/). On the other hand, an evidence of *fronting* can be found when respondent E replaces *medio palatal* /c/ with apikodental /t/ twice, *medio palatal* /ñ/ with apiko alveolar /n/ once, *lamino palatal* /ʃ/ with apikodental /t/ twice, and *lamino palatal* /ʒ/ with lamino alveolar /s/ once. The replaced phonemes are somehow more difficult to produce than the frontier ones. In addition, replacement of /ʃ/ with /t/ is also included in *stopping* process, since /ʃ/ is fricative and /t/ is stop.

Interestingly, respondent E also replaces the easier or frontier sound with the more difficult one, such as replacement of *lamino alveolar* /z/ with medio palatal /j/ once in initial position. It is interesting that instead of producing frontier or easier sound, she prefers replace it with sound which are produced

farther in the back of vocal tract which is also considered as more difficult phonemes. This process is also called as *backing*.

Other interesting thing we can find in her utterances is that she also replaces vowel and diphthong sounds in medial and final position of the words. *Front high upper /i/* with front middle upper /e/, *front low /a/* with front middle lower /ɛ/, *central middle /ə/* with front high lower /ɪ/, *front low /a/* with front middle upper /e/, and *front high lower /ɪ/* with central middle /ə/. *Up closed forward /aɪ/* with front middle lower /ɛ/, and *up closed backward /aʊ/* replaced twice with back middle upper /o/ and with central middle /ə/.

As well as the four previous respondents, respondent E also combines segmental alterations she made into deletion-insertion, deletion-metathesis, and deletion-insertion-metathesis alterations. She does not only alter one phonemes within one word but there are many words which consist of more than one deleted phonemes and more than one segmental alteration.

CHAPTER IV

CONCLUSION AND SUGGESTION