# Polish

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## 1. Language description

Polish is a West Slavic language and belongs to the Slavic branch of the Indo-European language family. Jassem (2003) characterises Polish as a typical consonant language due to a rich consonant system and the possibility of heavy consonant clusters. A cluster consisting of four consonants at the beginning of a word is not exceptional.

Polish has many palatal consonants. These consonants sound softer than the equivalents that are realised more to the front of the mouth. Another distinctive feature of Polish is its large number of sibilants. The rich sibilant inventory makes it difficult for non-native speakers to separate these phonemes from each other.

Polish has a relatively large number of nasal sounds. The test only contains one word with such a sound, namely the word for truck /tɕẽʒarufka/. The IPA symbol for a nasal sound is /˜/ above the vocal. The pronunciation of the /ẽ/ can also be heard in the French word 'fin.'

On the Internet page (http://www.poolsonline.nl/?pagina=1_les), you can listen to short fragments of Polish. It is also possible to have words pronounced through Google Translate.

**Consonant system**

**Table 1**

*Polish consonant system according to Jassem (2003)*

|  | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  | Coronal |  |  |  | Dorsal |  |  |  |
| plosives | p  b |  |  | t  d |  | (c  ɟ)¹ | k  g |  |  |  |
| nasals | m |  |  | n |  | ɲ | (ŋ)² |  |  |  |
| tap flap |  |  |  |  |  |  |  |  |  |  |
| fricatives |  | f  v |  | s  z | ʃ  ʒ | ɕ  ʝ | x |  |  | h |
| affricate |  |  |  | ts  dz³ | tʃ  dʒ | tɕ  dʝ |  |  |  |  |
| liquids |  |  |  | l |  |  |  |  |  |  |
| semi-vowels |  |  |  |  |  | j | w |  |  |  |

₁These are allophones of the k and the g. ²just as in Dutch, does not occur as an independent phoneme. In Polish, it is a result of the nasal vowel that precedes it. ³The affricates form minimal pairs with the phoneme clusters.

**Syllable structure**

Polish is a morphologically rich language. Because of that, it contains relatively large number of long words with complex clusters of up to four consonants. These occur in the initial, medial, and final positions. Speakaboo only includes words with clusters of two consonants. These are tested in all positions. For example, in the word /xwopjɛts/ ((little) boy).
Note: The affricates are separate phonemes, not clusters. It is possible to form minimal pairs where affricate or cluster makes the difference in meaning.

**Stress**

Usually on the penultimate syllable.

## 2. Acquisition of consonants

**Table 2**

*Acquisition of Polish consonants according to prof. Małgorzata Rocławska (University of Gdansk, 2014)*

| Age | Consonant |
| --- | --- |
| 0 to 0;11 | p t m n j |
| 1;9 to 1;11 | k |
| 2;0 to 2;2 | s x h |
| 2;3 to 2;5 | b f ʋ |
| 2;6 to 2;11 | l r |
| 3;0 to 3;2 | d |
| later | ʃ |

In professor Małgorzata Rocławska's overview (table 2), it is not indicated whether there is a difference in acquisition order between consonants in initial or final position.

## 3. Common phonological processes

The processes discussed below come from the literature about phonological development in Polish (see sources). The examples come from the study among normally developing Polish toddlers in the Netherlands (Holstvoogd, 2015).

| | |
| --- | --- |
| Gliding | rovɛr→wover, krova→kwova, balon→bajon |
| Lateralisatie | rovɛr→lovel, zɛgar→zɛgal, krova→klova |
| Fronting | ʃafa→safa, ʒaba→zaba, mɨʃ→mis, kçɛswo→ksɛswo, ʧapka→tsapka |
| Reductie cluster/ | tsirk→tsik, xwopjɛts→xwopjɛs, kluʧ→klut |
| afffricaat | ʤɛm→dɛm/zɛm/ʒɛm *(mogelijk interferentie vanuit het NL)* |
| | ʧapka→tapka/sapka, kurʧak→kurtak, tsirk→sirk/tirk, mlɛko→mɛko |
| Coalescence | swoɲ→ voɲ/foɲ |

## 4. Lexical variation

In Polish child directed speech, many diminutives are used. This means the diminutives will likely be acquired earlier and used more often by the children.

| Word | IPA | | | | | | | | | Lexical variation |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| dom (house) | d | o | m | | | | | | | domεk (cottage) |
| mysz (mouse) | m | ɨ | ʃ | | | | | | | mɨʃka (little mouse) |
| koń (horse) | k | o | ɲ | | | | | | | koɲik (little hourse) |
| tatuś (father) | t | ɑ | t | u | ç | | | | | tata (daddy) |
| ryba (fish) | r | ɨ | b | a | | | | | | rɨpka (little fish) |
| krzesło (chair) | k | ç | ε | s | w | o | | | | kçεsεwko (tiny chair) |
| lalka (doll) | l | a | l | k | a | | | | | lala (doll)<br>lalki (little doll) |
| doktor (doctor) | d | o | k | t | o | r | | | | pan (mister)<br>lεkaʃ (doctor) |
| małpa (ape) | m | a | w | p | a | | | | | mawpka (monkey) |
| pies (dog) | p | j | ε | s | | | | | | pjεsεk (doggy) |
| krowa (cow) | k | r | o | v | a | | | | | krufka (little cow) |
| szafa (closet) | ʃ | a | f | a | | | | | | ʃafka (cabinet) |
| pudełko (box) | p | u | d | e | w | k | o | | | karton (box)<br>pudwo (box) |
| kurczak (chicken/chick) | k | u | r | tʃ | a | k | | | | kura (chicken) |
| butelka (bottle) | b | u | t | ε | l | k | a | | | butεlki (little bottle) |
| chłopiec (boy) | x | w | o | p | j | ε | ts | | | xwoptjεk (little boy) |
| ciężarówka (truck) | t ç | ẽ | ʒ | a | r | u | f | k | a | aʊto (car) |

*Figure 1. lexical variation according to the interpreter*

## 5. Results of typically developing Polish toddlers

In the spring of 2015, 16 Polish children between 30 and 48 months old were tested with the paper version of Speakaboo from Kentalis (Holstvoogd, 2015). The children attended a regular preschool and, to the knowledge of their teachers, had a normal (language) development. The average age of the children was 38.1 months.

The test / lotto game (paper version of Speakaboo at the time) was carried out by a Polish interpreter after instructions from the researcher. The children were to match the displayed image with the lotto sheet and then name the word. If the child did not spontaneously name the word, the word would be said for repetition. If the child also would not repeat the word, the researcher would continue to the next word.

All expressions of the children are scored on a score sheet. In total, the test contains 36 words with 96 consonants, if the clusters and affricates are counted as one consonant.

Note: This is different in the current version of the score sheets; the consonants of a cluster are counted separately. If for the cluster /xw/, the child only realises the /x/, then the /x/ counts for the number of correct consonants. This means the PCC may end up a little higher with the current version of the score sheet.

Because not all words could be assessed (not spoken or not comprehensible), it was not possible to assess 96 consonants for all children. This was taken into account in the calculation of the scores. The averages of the group are shown in Table 3.

**Table 3**

*Average scores of normally developing Polish children*

| | |
|---|---|
| Age | 38.1 months |
| Number of consonants incorrect | 20 |
| Number of words not spontaneously named | 11.4 |
| Number of consonants accessed | 84.3 |
| Number of consonants correct | 64 (84-20) |
| Percentage Consonants Correct (PCC) | 76.2 (64/84*100) |

*Source: Holstvoogd (2015)*


## Example of an average score


### Girl, 42 months

| | |
|---|---|
| Number incorrect | 22 |
| Words repeated: | 5 |
| Not assessable: | 1 word (with 1 consonant) |
| Assessed: | 96-1=95 consonants |
| Correct: | 95-22=73 consonants |
| PCC | 73/95*100=76.8 |

Note: with the word for doll, /lɑlka/, the girl says [lala]. This is a permissible variant, which is why leaving out the /k/ is not counted as incorrect. /lɑlka/ actually means 'little doll' and /lala/ means 'doll'.

X: klank is verkeerd gerealiseerd

Ø: klank is weggelaten

NG: woord is nagezegd

| Woord | IPA | | | | | | | NG | Realisatie |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| 1.dom (huis) | d | ɔ | m | | | | | | |
| 2.nóż (mes) | n | u | X̶ | | | | | | nus |
| 3.mysz (muis) | m | ɨ | X̶ | | | | | | m ɨ s |
| 4.koń (paard) | k | ɔ | ɲ | | | | | | |
| 5.kot (poes) | k | ɔ | t | | | | | | |
| 6.banan (banaan) | b | a | n | a | n | | | | |
| 7.tatuś (vader) | t | a | t | u | ç | | | V | |
| 8.pająk (spin) | p | a | j | ɔ | ŋ | k | | V | |
| 9.lew (leeuw) | l | ɛ | f | | | | | | |
| 10.guziki (knopen) | g | u | j | i | k | i | | | |
| 11.ucho (oor) | | u | x | o | | | | | n tb |
| 12.ryba (vis) | X̶ | ɨ | b | a | | | | | L ɨ b a |
| 13.krzesło (stoel) | k | X̶ | ɛ | s | w | o | | | kseswo |
| 14.balon (ballon) | b | a | l | ɔ | n | | | | |
| 15.lalka (popje) | l | ɑ | l | (k) | a | | | | lala |
| 16.doktor (dokter) | d | ɔ | k | t | ɔ | r | | | |
| 17.małpa (aap) | m | a | w | p | a | | | V | |
| 18.pies (hond) | p | j | ɛ | s | | | | | |
| 19.rower (fiets) | X̶ | o | v | ɛ | X̶ | | | | lovel |
| 20.krowa (koe) | k | X̶ | o | v | a | | | | klova |
| 21.zegar (klok) | z | ɛ | g | ɑ | X̶ | | | | zegal |
| 22.słoń (olifant) | s | w | ɔ | ɲ | | | | | |
| 23.czapka (pet) | X̶ | ɑ | p | k | a | | | | sapka |
| 24.dżem (jam) | X̶ | ɛ | m | | | | | | sɛm |
| 25.żaba (kikker) | X̶ | a | b | a | | | | | saba |
| 26.stopa (voet) | s | t | o | p | a | | | | |
| 27.szafa (kast) | X̶ | a | f | a | | | | | safa |
| 28.mleko (melk) | m | (l) | ɛ | k | o | | | | mɛko |
| 29.pudełko (doos) | p | u | d | ɛ | w | k | o | V | |
| 30.klucz (sleutel) | k | l | u | X̶ | | | | | klus |
| 31.cyrk (circus) | X̶ | ɨ | r | k | | | | | sɨrk |
| 32.kurczak (kip) | k | u | (t) | X̶ | ɑ | k | | | kusak |
| 33.piżama (pyjama) | p | i | X̶ | a | m | a | | | pisama |
| 34.butelka (fles) | b | u | t | ɛ | l | k | a | | |
| 35.chłopiec (jongen) | x | w | o | p | j | ɛ | X̶ | | xwopjɛs |
| 36.ciężarówka (vrachtwagen) | t̠ɕ X̶ | ž̶ X̶ | X̶ | a | r | u | f | k | a | V | sɛnsarufka |
| **Totaal aantal consonanten fout** | | | | | | | | A. | 22 |
| **Totaal aantal consonanten geproduceerd** 106-aantal consonanten van niet geproduceerde woorden | | | | | | | | B. | 106–1 = 105 |
| (B-A) / B * 100 | | | | | | | | PCC | 79,05 |

Speakaboo 9.0 - scoreformulier Pools

*Figure 2: Example score sheet (consonants in clusters are counted as individual consonants).*

## 6. Sources

***Literature***

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