

Conjunctions in Polish sign language dictionaries and signed texts translated from Polish*

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Abstract. This study conducts a comparative analysis of conjunctions catalogued in Polish Sign Language (PJM) dictionaries, from historical to contemporary editions, and those used in actual PJM texts translated from Polish. The analysis includes dictionaries from the earliest known *Słownik mimiczny dla głuchoniemych i osób z nimi styczność mających* (1879) to the contemporary online *Korpusowy słownik polskiego języka migowego UW* (2016). The main focus of this article is to examine the frequency of certain PJM conjunctions in texts translated by an all-Deaf team. This is exemplified by the multimedia adaptation of the fifth-grade primary school textbook *Jutro pójdę w świat 5* (2016), in which all texts are translated into PJM. The results aim to bridge the gap between lexicographical records and actual language use in the deaf community, and to highlight the dynamics of PJM development.

Keywords: Deaf, Polish Sign Language, equivalents in sign language, Polish conjunctions

Jungtukai lenkų gestų kalbos žodynuose ir iš lenkų kalbos verstuose tekstuose gestų kalba

Santrauka. Šis darbas pagrįstas lyginamąja analize. Tiriama lenkų gestų kalbos (LGK) žodynuose pateikiami jungtukai, pradedant istoriniais ir baigiant šiuolaikiniais leidimais, ir jungtukai, kurie vartojami LGK tekstuose, verstuose iš lenkų kalbos. Tyrimas apima žodynus nuo seniausio žinomo šaltinio *Słownik mimiczny dla głuchoniemych i osób z nimi styczność mających* (1879) iki šiuolaikinio internetinio žodyno *Korpusowy słownik polskiego języka migowego UW* (2016). Pagrindinis straipsnio tikslas – ištirti tam tikrų LGK jungtukų vartojimo dažnumą tekstuose, kuriuos išvertė kurčiųjų komanda. Tyrime remiamasi vadovėlio daugialypės terpės adaptacija, skirta penktai pradinės mokyklos klasei *Jutro pójdę w świat 5* (2016). Ten pateikiami visų tekstų vertimai į LGK. Tyrimu ir jo išvadomis siekiama sumažinti atotrūkį tarp leksikografinių įrašų ir tikrojo kalbos vartojimo kurčiųjų bendruomenėje, išryškinant LGK evoliucijos dinamiką.

Raktiniai žodžiai: Kurtieji, lenkų gestų kalba, atitikmenys gestų kalboje, lenkų kalbos jungtukai

* Original title: Spójniki w słownikach polskiego języka migowego i w tekstach tłumaczonych na PJM
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1. Introduction

Most PJM dictionaries include conjunctions although there is considerable variation in the number of entries devoted to them (see Section 2 for details). The literature on syntactic coordination and subordination in sign languages, on the other hand, suggests that conjunctions are rarely used for this purpose, while other ways of linking grammatical constructions seem to be more typical (Tang and Lau 2012). The aim of this paper is to compare conjunctions identified in PJM dictionaries with Polish conjunctions as presented in *Język polski. Poradnik Profesora Andrzeja Markowskiego* (2003). It also examines the frequency of certain PJM conjunctions in texts written by deaf people, as illustrated by the multimedia adaptation of the fifth-grade primary school textbook *Jutro pójdę w świat 5* (2016), which includes translations of all texts into PJM.

However, the analysis of these translations primarily reflects the linguistic preferences of the two translators involved in this particular project. It is a common perception within the Deaf community that there are as many versions of PJM as there are Deaf people. This highlights the wide variation in vocabulary among PJM users, partly due to regional differences within the local signing community and the linguistic continuum between PJM and Signed Polish (SJM) (Tomaszewski and Piekot 2015). This sociolinguistic variance highlights the complexity of drawing general conclusions about the use of conjunctions in the wider PJM-speaking community.

According to Szczepankowski (2019a, 2019b, 2019c), differences in the use of sign language among deaf people can be attributed to two main factors: interference and coexistence. A deaf child who acquires PJM at home starts attending a school for the deaf, where they are mainly taught spoken Polish – grammar, spelling and speech – for twelve years, which is essentially a process of Polonization. Here they are likely to be taught by teachers who are more familiar with SJM than PJM (Tomaszewski, Sak 2014). This educational framework inevitably affects the child’s sign language skills, a phenomenon known as interference.

As these children use both PJM and Polish, the languages begin to coexist, either synergistically or disruptively. This coexistence may result in the child’s sign language being mixed with elements of Polish grammar and, conversely, their Polish may incorporate structural elements of sign language. As a result, these individuals often navigate a linguistic continuum between PJM and SJM, finding themselves closer to one end or the other. This pattern is also observed in adults although their position on this continuum may shift over time.

This analysis seeks to elucidate how the divergent use of conjunctions in PJM and spoken Polish reflects broader sociolinguistic dynamics, thus contributing to our understanding of language evolution within the Deaf community.

2. Analysis of selected Polish Sign Language dictionaries in comparison to spoken Polish

Despite PJM being my first language, the analysis presented here does not rely on my personal linguistic intuitions. Although there is an abundance of authentic and natural sign language recordings available online, this data is not ideally suited for this analysis due to the infrequent occurrence of conjunction signs within such material.

Paradoxically, the fact that PJM lacks its own writing system, unlike spoken Polish, means that dictionaries published in Polish become a logical starting point for studying PJM conjunctions. This study

considers four printed dictionaries and one online resource: *Słownik mimiczny dla głuchoniemych i osób z nimi styczność mających* by Józef Hollak and Teofil Jagodziński, *Słownik polskiego języka miganego* by Józef Kazimierz Hendzel, *Język migany w szkole 1* by Bogdan Szczepankowski, *Leksykon języka migowego* by Olgierd Kosiba and Piotr Grenda, and *Korpusowy słownik polskiego języka migowego UW*, edited by Joanna Łacheta, Małgorzata Czajkowska-Kisil, Jadwiga Linde-Usiekniewicz, and Paweł Rutkowski. These dictionaries vary in the extent to which they represent PJM or SJM. While *Słownik mimiczny dla głuchoniemych i osób z nimi styczność mających* is thought to reflect late 19th-century PJM (Linde-Usiekniewicz and Łozińska (2023)), both *Leksykon języka migowego* by Olgierd Kosiba and Piotr Grenda, and *Korpusowy słownik polskiego języka migowego* represent contemporary PJM. Conversely, *Słownik polskiego języka miganego* by Józef Kazimierz Hendzel and *Język migany w szkole* are seen as being representative of, or at least strongly influenced by, Signed Polish (Tomaszewski and Piekot 2015) as indicated by their use of the word *migany* (literally ‘signed’) as opposed to *migowy* (‘sign’) in their titles.

A guide to contemporary Polish, *Język polski. Poradnik Profesora Andrzeja Markowskiego*, has been chosen as the basis for understanding Polish conjunctions and as a reference point for the analysis of conjunctions in PJM.

2.1. *Język polski. Poradnik Profesora Andrzeja Markowskiego (2003)*

In his work, Markowski (2003) categorizes 139 Polish conjunctions into three groups: 81 single-word conjunctions, 30 continuous compound conjunctions (e.g. *czy aby...* ‘if...’), and 28 discontinuous compound conjunctions (e.g. *czy... czy...* ‘either... or.../whether... or...’¹). Each conjunction is accompanied by information on its stylistic characteristics, indicating whether it is neutral, informal, formal, archaic or even humorous. Furthermore, the author provides examples of correct and incorrect usage for each conjunction. Notably, Markowski conceptualizes conjunctions as a very broad category, encompassing many words that function conjunctively but are traditionally classified as other parts of speech.

2.2. *Słownik mimiczny dla głuchoniemych i osób z nimi styczność mających (1879)*

The preface to *Słownik mimiczny* contains a wealth of valuable information concerning the methods used to teach Polish grammar to deaf-mute students in the Warsaw Institute for the Deaf-Mute and Blind, established in 1817 by Jakub Falkowski. This includes the use of “mimic speech” as a teaching tool. Published almost 150 years ago in the era of the non-sovereign Congress Kingdom of Poland, the descriptions of many signs differ significantly from contemporary Polish, which sometimes poses challenges in their interpretation.

This dictionary is unique among the selected resources in that it contains signs equivalent to Polish grammatical terms, such as *spójnik* (conjunction) – “it is characterized by the joining of both hands by the tips of the fingers brought close together, with an explanation given by way of example”² (Hollak and Jagodziński 1879, 291).

¹ Examples of all three types of conjunctions (Markowski 2003): 1. *czy* (single-word conjunction): e.g. „Powiedz, **czy** ty mnie lubisz?” “Tell me, do you like me?”. 2. *czy aby* (continuous compound conjunction): e.g. „Nie wiem, **czy aby** mi się to nie śniło”. “I don’t know **if** it wasn’t a dream.”; 3. *czy...*, *czy* (discontinuous compound conjunction): e.g. „Zastanawiali się, **czy** przyjedzie tylko babcia, **czy** oboje dziadkowie.” “They were wondering **whether** it would be only grandma who comes **or** both grandparents.”

² “**Spójnik**. Określa się łącząc obie ręce końcami skupionych palców, z wyjaśnieniem na przykładzie.”

Of over 50,000 signs included in *Słownik mimiczny* over nearly 60 years, only six are explicitly labeled as conjunctions: *a* (*spójnik*) ‘and/while (conjunction)’, *aby* (*spójnik*) ‘in order to (conjunction)’, *albo* (*spójnik*) ‘or (conjunction)’, *ale* (*spójnik*) ‘but (conjunction)’, *i* (*spójnik*) ‘and (conjunction)’, and the now archaic *lubo* (*spójnik*) ‘although (conjunction)’. This classification may be due to homonymy with the names of letters (*a* and *i*) and other words (e.g. *lubo* ‘pleasantly’), or to the polysemy of the terms themselves in spoken Polish. The dictionary lists 59 single-word conjunctions and one continuous compound conjunction *chyba że* ‘unless’, totaling 60 conjunctions – the highest number of all the dictionaries analyzed. The entry list, including conjunctions, was probably modeled on a nineteenth-century Polish dictionary (Linde-Usiekniewicz i Łozińska 2023).

2.3. *Słownik polskiego języka miganego* (1986)

This dictionary features 2 133 black-and-white photographs, each accompanied by a graphic description that supplements the articulatory information of the signs.

In the introduction, Zdzisław Bielonko, then President of the Main Board of the Polish Association of the Deaf (*Polski Związek Głuchych*, PZG) in Warsaw, outlines the process of the dictionary’s creation and the unique circumstances surrounding it. He notes that all signs included in the publication were selected by the Committee for the Unification of Sign Language, established by the PZG. Additionally, excerpts from Bogdan Szczepankowski’s earlier work, *Język migowy. Wprowadzenie* (1974), are incorporated.

In the chapter titled *Jak prawidłowo posługiwać się językiem miganym* (*How to properly use signed Polish*), the author explains the etymology of the word *migany* (‘signed’): “we use our native language daily, either in speech or in writing. It can be said that Polish is spoken or written. Extending this idea, it should be assumed that signed Polish exists if the means of using it involves signing, that is, conveying content through signs” (Hendzel 1986, 17).

The work contains 15 single-word conjunctions, with two explicitly labeled as conjunctions due to homonymy with the names of letters: *a* (*jako spójnik*) ‘and/while (as a conjunction)’ and *i* (*jako spójnik*) ‘and (as a conjunction)’. No data was found to suggest that any Polish language dictionary was used as a source for the entry list.

2.4. *Język migany w szkole 1* (1988)

This publication comprising 500 signs, marked the beginning of a three-volume series published in 1988 and edited by four different authors.

In this work, each sign is presented using Bogdan Szczepankowski’s gestographic notation along with an abbreviated form of this notation. Illustrations are available for some signs, enhancing their comprehensibility. The publication does not provide definitions or examples of signs used in actual sign language utterances; instead, examples of use are provided solely in Polish. The dictionary includes a total of 20 single-word conjunctions.

2.5. *Leksykon języka migowego* (2011)

This lexicon presents the first comprehensive collection of PJM lexis, featuring color photographs of 2,800 signs. Each sign is accompanied by graphic symbols of articulation and descriptions using Bogdan Szczepankowski’s abbreviated notation. It documents 20 single-word conjunctions, among which only one is explicitly labeled as a conjunction: *i* (*spójnik*) ‘and (conjunction)’.

2.6. Korpusowy słownik polskiego języka migowego UW (2016)

Poland's first empirical PJM Corpus, based on corpus data, features individual entries presented as video clips (showing each sign produced in isolation) and annotated using HamNoSys notation (Hanke 2004). In addition, each entry includes usage examples that are recreations of sign utterances taken from the Polish Sign Language Corpus (Rutkowski, Mostowski 2013, Rutkowski et al. 2017).

The PJM Corpus contains a total of 16 single-word conjunctions, providing examples of their use not only as conjunctions but also as pronouns. A distinctive aspect of this publication compared to earlier works is that the entry list was created independently of any Polish language dictionary, comprising exclusively units used within the Deaf community.

2.7. Summary

The following tables present a comparative analysis of single-word conjunctions found in various sign language dictionaries. The data includes a breakdown of the number of single-word conjunctions documented in each source and a detailed list of Polish conjunctions alongside their corresponding signs in PJM.

Table 1. Number of single-word conjunctions in all analyzed sign language dictionaries

1	<i>Słownik mimiczny dla głuchoniemych i osób z nimi styczność mających</i>	1879	sign (PJM)	60
2	<i>Słownik polskiego języka migowego</i>	1986	signed (SJM)	15
3	<i>Język migany w szkole 1</i>	1988	signed (SJM)	20
4	<i>Leksykon języka migowego</i>	2011	sign (PJM)	20
5	<i>Korpusowy słownik polskiego języka migowego UW</i>	2016	sign (PJM)	16
In total				61

Table 2. Number of single-word conjunctions in PJM and Polish

Sign conjunction	Polish conjunction according to Markowski (2003)
61	81

Table 3. Detailed list of all 61 Polish single-word conjunctions assigned a PJM equivalent in sign language dictionaries

1. a 'and/while'	2. aby 'in order to'	3. albo 'or'	4. albowiem 'because'	5. ale 'but'
6. ani 'either... or/ neither... nor/or/and'	7. aniżeli 'than'	8. atoli 'however'	9. aż 'until'	10. bo 'because/otherwise'
11. bowiem 'because'	12. by 'to'	13. chociaż 'although'	14. choć 'although'	15. co 'what/that/which'
16. czy 'if/whether'	17. dlatego 'therefore'	18. dopóki 'until/as long as/ while'	19. dopóty 'until'	20. gdy 'when'
21. gdyby 'if'	22. gdyż 'because'	23. i 'and'	24. iż 'that'	25. jak 'as'

26. jakby 'as if'	27. jakkolwiek 'no matter how'	28. jednak 'however/but/yet'	29. jednakże 'nonetheless'	30. jedynie 'only'
31. jeśli 'if'	32. jeżeli 'if'	33. kiedy 'when'	34. lecz 'but'	35. ledwie 'as soon as'
36. lub 'or'	37. lubo 'although'	38. mianowicie 'namely'	39. nadto 'moreover'	40. niż 'than'
41. niżeli 'than'	42. oraz 'and'	43. ponieważ 'because'	44. póki 'until/as long as/ while'	45. póty 'until'
46. przeto 'hence'	47. raczej 'rather/instead'	48. skoro 'since'	49. tedy 'then/so'	50. to 'then/so'
51. tudzież 'or'	52. tylko 'only'	53. więc 'so'	54. względnie 'or'	55. zaledwie 'as soon as'
56. zamiast 'instead'	57. zanim 'before'	58. zaś 'and/while'	59. zatem 'so/thus'	60. że 'that'
61. żeby 'to'				

The analysis demonstrates that all sign language dictionaries collectively identified 61 single-word conjunctions and one continuous compound conjunction (*chyba że* 'unless'). No discontinuous compound conjunction (e.g. *tym bardziej, że...* 'all the more so because...') was identified. Consequently, the rest of this article will focus exclusively on single-word conjunctions (hereafter simply referred to as "conjunctions"), aiming to present the full set of conjunctive signs documented in the aforementioned dictionary sources.

It has been observed that in some cases, signs were marked as a conjunction (*spójnik*) by the dictionary authors. A total of six such instances were noted: *a* 'and/while' (twice), *aby* 'in order to', *albo* 'or', *ale* 'but', *i* 'and' (three times), and *lubo* 'although'. However, all signs that are functionally equivalent to Polish conjunctions as identified in *Poradnik Markowskiego* should be acknowledged as conjunctions, even if they were not overtly marked as such in the dictionaries.

Among the 61 conjunctions documented in the source dictionaries, 35 PJM conjunctions and one from SJM (*to* 'then') were described so vaguely—and not supplemented with illustrations—that accurate depiction or video recording based on these descriptions alone would be challenging.

As demonstrated in Markowski's guide (2003), synonymy is commonly observed among conjunctions. Eight instances of synonymy were identified: *albo* (*spójnik*) – *lub* 'or', *choć* – *choć* 'although', *i* (*spójnik*) – *oraz* – *tudzież* 'and', *iż* – *że* 'that', *jeśli* – *jeżeli* 'if', *ledwie* – *zaledwie* 'as soon as', *niż* – *niżeli* 'than', *przeto* – *tedy* – *więc* – *zatem* 'so'. In the case of PJM, a different phenomenon is notable – polysemy (or even homonymy) is present in many signs.

3. Conjunctions in the textbook *Jutro pójdę w świat 5*

Jutro pójdę w świat 5 is a textbook designed for literary, cultural and language education targeted at fifth-grade elementary students. Authored by Hanna and Urszula Dobrowolska, the book was published in 2016 and is available in both paper and digital formats. A multimedia adaptation specifically tailored for students with special educational needs, particularly deaf students, was also created. Featuring Marek Śmietana and Paulina Romanowska, both of whom are Deaf, as PJM translators, this version is compatible with Windows, Linux, and MacOS X. It was commissioned by the Ministry of

National Education and developed by the University of Warsaw's Section for Sign Linguistics, under the leadership of Paweł Rutkowski (Rutkowski and Mostowski 2017).

3.1. Polish conjunctions in the paper version

In the analyzed textbook, 66 literary texts – 34 prose and 32 poetry – were selected, comprising 2,095 sentences. Out of these, only 61 conjunctions occurring within these sentences were considered for analysis. Conjunctions appeared in 1,286 sentences, representing 61.4% of the total studied dataset, which implies that no conjunctions were found in the remaining 809 Polish sentences (38.6%).

The analysis encountered significant challenges due to the homonymy of some words. For instance, the word *a* serves multiple roles beyond being a conjunction; it can function as an interjection, a particle, or even a noun (as in the first letter of the alphabet). Another linguistic challenge was synonymy. For example, the words *jeśli* and *jeżeli* are close enough in meaning that they were treated as a single conjunction in the frequency analysis. Additionally, the composition of phrases such as *a jednak* 'however/and yet' presented complexities; without thorough analysis, these could mistakenly be interpreted as two independent conjunctions.

Among all conjunctions, the word *i* 'and' was the most frequent, appearing 727 times and accounting for 32.1% of all conjunction occurrences.

3.2. PJM conjunctions in the digital version

The multimedia adaptation includes a total of 1,631 videos involving PJM translators, with 273 (16.7%) comprising literary translations (prose and poetry). The videos translating all 1,286 sentences that originally contained conjunctions into PJM were thoroughly reviewed. Within this dataset, only 492 sign language equivalents of Polish conjunctions were identified.

In 794 cases, the Polish conjunctions did not have lexical equivalents in PJM within the translated text. Furthermore, of all 492 identified equivalents, only 169 were congruent with signs recorded in sign language dictionaries.

Alongside instances of congruence, various types of incongruences were also encountered. These can be illustrated through the translation dynamics of the Polish conjunction *jeśli* 'if' and its PJM equivalent, as well as other conjunctions.

Firstly, there are cases where a PJM conjunction directly corresponds to a Polish conjunction. For example, there are 13 instances (7.7%) where *jeśli* 'if' has a direct PJM equivalent, with *ale* 'but' being the most common at 28 occurrences (16.6%).

Secondly, a Polish conjunction may be rendered by a different PJM conjunction. In the case of *jeśli* 'if', it was most frequently translated as *chociaż* 'although'.

Thirdly, a Polish conjunction may be translated into PJM lexeme belonging to a different grammatical category. For *jeśli* 'if', the corresponding sign was often equivalent to the Polish particle *chyba* 'probably/supposedly'.

Finally, there are instances where, despite the absence of conjunctions or any other conjunctive elements in the Polish text, a PJM conjunction, such as *ale* 'but', is used in the translated text.

3.3. Mouthing and other non-manual features

Communication in sign languages, including PJM, relies not only on manually produced signs but also incorporates mouthing, where the signer articulates in ways characteristic of spoken language words (Sutton-Spence, Boyes-Braem 2001; Tomaszewski, Farris 2010). Indeed, this additional visual signal frequently co-occurs with conjunction signs. Specifically, in all documented instances of mouthing (9 cases, 34.6%), it was most associated with the conjunction *ale* ‘but’.

Moreover, the Deaf translators mentioned above use their entire bodies to communicate, not just their hands. This includes subtle movements of the head and torso, and a broader range of non-manual features such as shoulder, torso, and hip movements in both vertical (up-down) and horizontal (front-back and side-to-side) planes. The most frequent (101 instances; 67.3%) changes in body position occurred to indicate the conjunction *i* ‘and’.

It is important to note that such non-manual features and mouthing are typically not included in available sign language dictionaries, highlighting a gap in the documentation of these expressive elements.

3.4. Summary

Table 4 below illustrates a striking contrast in the distribution of conjunctive contexts. Position 1 accounts for 169 occurrences, representing 30.3% of all analyzed conjunctive contexts. Positions 2 through 6 account for 389 occurrences, which comprise 69.7% of the total. Notably, within these, non-manual features occur 150 times, constituting 26.9% of the cases.

Table 4. Breakdown of conjunction translations into PJM

1	Number of conjunctions translated into PJM in a way congruent with equivalents recorded in sign language dictionaries	169	30.3%
2	Number of conjunctions translated into PJM in a way incongruent with equivalents recorded in sign language dictionaries	61	10.9%
3	Number of conjunctions translated into PJM as signs not recorded as conjunction equivalents in any sign language dictionary	124	22.2%
4	Number of conjunction signs present in the translated text but lacking equivalents in the original text	28	5.0%
5	Number of mouthings	26	4.7%
6	Number of non-manual features used as conjunctions	150	26.9%
In total		558	

4. Conclusion

The study, while informative, was not without its limitations. Confirming equivalents for only 61 of the 81 single-word conjunctions identified in Markowski’s work (2003) should not be taken to imply that these are the sole signs and non-manual signals used to express conjunctive relations in PJM. Additionally, the absence of PJM equivalents for 58 excluded Polish compound conjunctions from dictionaries, including those dedicated to signed languages, highlights an area that merits further exploration. This omission does not necessarily mean that Deaf individuals do not use phrases analogous to Polish structures such as *chyba że* or *chyba żeby* ‘unless’. These aspects warrant further investigation.

It is for this reason that the analyzed translations in *Jutro pójdę w świat 5* are indicative only of how the two translators involved in the project use conjunctions. This approach may not fully represent the diverse usage of PJM equivalents of conjunctions across the entire Polish Deaf community, which is a subject worthy of more extensive research given the likely variations among its members.

However, the most revealing quantitative findings are those that show the proportion of specialized PJM linking markers that are used in place of traditional conjunctions, including those listed in the PJM Corpus-based dictionary. This includes the use of signs not traditionally identified as conjunctions, as well as non-manual markers (see Table 4 in Section 3.4).

These choices can be interpreted as highly indicative of the translators' diligent effort to minimize the influence of the source language (spoken Polish) on the target text. This approach suggests their adherence, whether conscious or unconscious, to the interpretative theory of translation (Seleskovitch 1992). As a result, they provide their young Deaf audience with texts that are both highly comprehensible and naturally rendered in a model version of PJM.

In light of these findings, future research should focus on expanding the understanding of PJM conjunction usage beyond the scope of individual translators to encompass broader community practices. Such studies are crucial for developing more effective educational tools and resources that cater to the linguistic nuances of the Deaf community in Poland. Additionally, exploring the interaction between non-manual signals and signed language structure could further enrich our understanding of PJM's complexity and dynamism, ultimately leading to more nuanced translation practices and improved communication strategies for Deaf individuals.

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Submitted February 2023

Accepted July 2024