# Quantifier Focusing Effects in Polish

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## BACKGROUND

- The polarity of a natural language quantifier (NLQ) has consistently been shown to affect the sets available for reference.

> 1) Not many of the MPs went to the meeting.
> 1') They joined online from home.
> 2) Many of the MPs went to the meeting.
> 2') They argued about immigration.

- Negative (-ive) natural language quantifiers (NLQs) tend to promote reference to a different set than positive (+ive) NLQs. (1'), which refers to the complement set, is preferred after (1) which uses the -ive **not**. (2') is more likely after (2) which uses +ive **many.**

- Seen using a range of methods: sentence continuations (Moxey & Sanford, 1987), sentence acceptability ratings (Heinat & Klingvall, 2019; Upadhyay et al., 2019), self-paced reading (Sanford et al., 1996), eye-tracking (Paterson et al., 1998) and event-related potentials (Filik et al., 2011).

- Presupposition denial account (Moxey, 2006)

> 3) Robert expected *all/none* of the audience to applaud.
> *A few/Few* of those in the crowd clapped and cheered.
> They…

- "shortfall" between expected and denoted amounts.
- Complement set references as "reasons-why-not".

- ALTERNATIVE THEORY – generic reference to maximal or general set (Corblin, 1996).

- Where a quantifier is monotone decreasing, and a default reference to the reference set would be anomalous, the complement set may become available for reference (Kibble, 1997; Nouwen, 2003; Zulaica-Hernández, 2018).

- Generally explored in English. Some experimental studies in Swedish (Heinat & Klingvall, 2019) and theoretical consideration in Spanish (Zulaica-Hernández, 2018).

## THE CURRENT STUDY

- Examine the production and acceptability of complement set references in Polish.
- Expand range of languages used to examine complement set reference.
- Test predictions of Presupposition Denial Account in a Slavic language

## Experiment 1 – Sentence Continuation

### Participants
40 native speakers of polish recruited via Prolific.

### Design & Materials
120 sentences, half beginning with **Not Many**, half beginning with **Many**.

| Condition | Expectation Sentence |
|---|---|
| Negative | Not many of the patients were scared of the dentist. They… Niewielu pacjentów bało się dentysty. |
| Positive | Many of the patients were scared of the dentist. They… Wielu pacjentów bało się dentysty. |

### Procedure
Read each sentence carefully and write a suitable next sentence beginning with "They.."

After writing the next sentence answer the question. "Who is your sentence about? 1)The patients who were scared of the dentist, 2) The patients who were not scared of the dentist, 3) Somebody or something else.

### Results

Quantifier*set
F(1, 38) = 143.94, p<.001, $\eta_p^2$ = .79
All SMEs significant (ps<.001)

ME of Set
F(1, 38) = 19.75, p<.001, $\eta_p^2$ = .34


% Sentence Completions to Each Set

## Experiment 2 – Sentence Rating

### Participants
40 native speakers of polish. 17 recruited via convenience sampling through social media, 23 recruited through Prolific.

### Design & Materials
120 passages, 2(quantifier) x 2(set) design
Half beginning with **Not many** (-ive) many and half **Many** (+ive).

Half ending with a reference to the **complement set**, half with a reference to the **reference set**. Counterbalanced in 4 files

| Condition | Passage |
|---|---|
| Neg/Compset | Not many of the patients were scared of the dentist. They booked appointments without hesitation. Niewielu pacjentów bało się dentysty. Umawiali wizyty bez wachania. |
| Neg/Refset | Not many of the patients were scared of the dentist. They found visits were always painful. Niewielu pacjentów bało się dentysty. Wizyty były zawsze bolesne. |
| Pos/Compset | Many of the patients were scared of the dentist. They booked appointments without hesitation. Wielu pacjentów bało się dentysty. Umawiali wizyty bez wachania. |
| Pos/Refset | Many of the patients were scared of the dentist. They found visits were always painful. Wielu pacjentów bało się dentysty. Wizyty były zawsze bolesne. |

### Procedure
Read each passage carefully and rate how well the last sentence fits with what came before.

1 - Very awkward, 2 - Somewhat awkward, 3 - Neither good nor bad, 4 - Fits pretty well, 5 - Fits very well

### Results

Quantifier*set
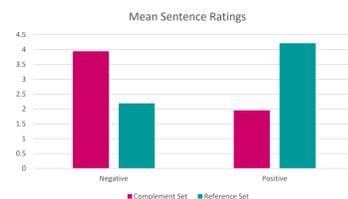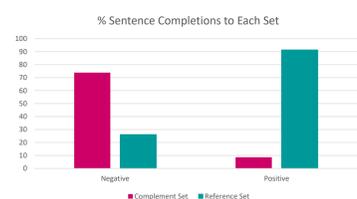F(1, 37) = 267.48, p<.001, $\eta_p^2$ = .88
All SMEs significant (ps<.001)

No ME of Quantifier
F(1, 37) = .13, p=.72, $\eta_p^2$ = .004

ME of Set
F(1, 37) = 12.22, p=.001, $\eta_p^2$ = .25


Mean Sentence Ratings

## Experiment 3 – Sentence Rating

### Participants
40 native speakers of polish recruited via Prolific.

### Design & Materials
120 passages, 2(expectation) x 2(quantifier) x 2(set)
Half setting an expectation for a high amount "All" and high setting an expectation for a low amount "None"
Half beginning with **Not many** (-ive) many and half **Many** (+ive).

Half ending with a reference to the **complement set**, half with a reference to the **reference set**. Counterbalanced in 8 files – each of the conditions for Experiment 1 with addition of 2 x expectation.

| Condition | Expectation Sentence |
|---|---|
| Expect high | The dentist expected all of the patients to worry about appointments. Dentysta oczekiwał, że wszyscy pacjenci będą martwić się wizytą. |
| Expect Low | The dentist expected none of the patients to worry about appointments. Dentysta oczekiwał, że żaden z pacjentów nie będzie martwić się wizytą. |

### Procedure
Read each passage carefully and rate how well the last sentence fits with what came before.

1 - Very awkward, 2 - Somewhat awkward, 3 - Neither good nor bad, 4 - Fits pretty well, 5 - Fits very well

### Results

No 3-way interaction (p = .06)

Quantifier*set
F(1, 37) = 317.65, p<.001, $\eta_p^2$ = .91
All SMEs significant
All ps<.001

Expectation*set
F(1, 37) = 5.11, p=.030, $\eta_p^2$ = .12
Refset high > Refset low (p=.02)

Quantifier*expectation
F(1, 37) = 6.06, p=.019, $\eta_p^2$ = .14

Positive refset high > low (p=001)
Negative compset > Positive Compset regardless of expectation (ps<.001)

No ME of Expectation
F(1, 37) = 2.24, p=.14, $\eta_p^2$ = .06

No ME of Quantifier
F(1, 37) = .01, p=.91, $\eta_p^2$ < .001

ME of Set
F(1, 37) = 12.22, p=.001, $\eta_p^2$ = .25


HIGH EXPECTATION - Mean Sentence Ratings


LOW EXPECTATION - Mean Sentence Ratings

## CONCLUSIONS

- Sentence continuations followed a very similar pattern to research in English. Complement set references were more common after negative NLQs but not produced as frequently as reference set references after positive NLQs.
- Basic sentence ratings followed a similar pattern with complement set references "fitting" better after negative NLQs. Expectation made very little difference to this pattern.
- Supports complement set reference after negative NLQs in Polish. Does not provide evidence for Presupposition Denial Account, however this account has mostly been previously tested with sentence continuation studies and eye-tracking.
- All materials used the explicitly negated quantifier Not Many which may have overridden any more subtle effects found with non-explicit quantifiers such as Few.
- Provides greater insight into the manipulating properties of negative NLQs in pronominal referencing by expanding the range of languages under which complement set referencing is observed.

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