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## Can Polish *-no/-to* Demote Discourse-Prominent Referents? Corpus Data vs. Acceptability

*Le polonais -no/-to peut-il rétrograder des référents proéminents en discours ?  
Données de corpus vs acceptabilité*

**Iga Kościółek and Daniel Bunčić**

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# Can Polish *-no/-to* Demote Discourse-Prominent Referents? Corpus Data vs. Acceptability

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Most human impersonal constructions can either refer to demoted referents or demote a previously discourse-prominent referent. According to Bunčić (2019), however, the Polish *-no/-to* construction cannot be used to demote a topical referent. This paper reports the results of a corpus study and two acceptability judgement tests. While the corpus data indicate that the construction is indeed avoided in this context, the acceptability judgement tests show that the construction is not rated worse in this context than in others. Clearly, *-no/-to* after a coreferential noun phrase is a case of a completely acceptable expression that nonetheless is avoided in favour of other expressions in language practice.

**Keywords:** impersonal constructions, human impersonal pronouns, acceptability, frequency, discourse prominence, givenness, recency, Polish language

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*La plupart des constructions impersonnelles à référent humain peuvent renvoyer à des référents rétrogradés ou bien rétrograder un référent précédemment discursivement proéminent. Selon Bunčić (2019), cependant, la construction polonaise -no/-to ne peut pas être utilisée pour rétrograder un référent topique. Le présent article rapporte les résultats d'une étude de corpus et de deux tests d'acceptabilité. Alors que les données du corpus indiquent que la construction est vraiment évitée dans ce contexte, les tests d'acceptabilité montrent que la construction n'est pas moins bien évaluée dans ce contexte que dans d'autres. Manifestement, -no/-to après un groupe nominal coréférentiel est un cas d'expression tout à fait acceptable qui est néanmoins évité au profit d'autres expressions dans la pratique linguistique.*

**Mots clés:** constructions impersonnelles, pronoms impersonnels à référent humain, acceptabilité, fréquence, prééminence discursive, givenness, récence, langue polonaise

## 1. Introduction

- 1 Human impersonal constructions (Gast & Van der Auwera, 2013) can be used to demote (background) the referential status of agents whose identity is for some reason kept vague, as in the French sentence in [1].

[1] *On a retrouvé ton porte-monnaie.*

IMPS has found your purse

'Your purse has been found.'

(Gast & Van der Auwera, 2013: 126; quoting Creissels, 2008: 8)

2 However, at least some of these constructions can also be used to demote the reference to an agent whose identity is actually clear, having been previously mentioned, as in [2].

[2] *Do you suppose we're ever going to feel comfortable in these uniforms? I mean, one feels so awkward.*

(BNC: Elizabeth Elgin, *All the Sweet Promises*, London, Grafton Books, 1991)

3 Here, the referent of the impersonal pronoun *one* clearly includes the speaker. The function of the pronoun *one*, consequently, is not to keep the reference to the speaker vague, but to mark the predication about her as generic, as something that not only happens to her but that would happen to anyone wearing those uniforms. (In the context of this story, the group referred to by *one* also includes the other two women who are joining the Women's Royal Naval Service with the speaker, whom she has just referred to using the personal pronoun *we* in the previous sentence. The (at least partial) coreference is stressed by the repetition of the verb *feel* and the use of the antonyms *comfortable* and *awkward*.)

4 One might assume that this is a possible function of all impersonal pronouns that can express such a generic meaning. However, according to Bunčić (2019: 72-73), the Polish *-no/-to* construction – while perfectly capable of expressing a generic reading about an agent – cannot demote a referent mentioned prominently in the preceding discourse but can “only refer to already demoted subjects” (Bunčić, 2019: 72). The present paper reports empirical data seeking to verify (or falsify) this claim.

5 In the following Section 2, we will give a short overview of the morphology, syntax, and semantics of the construction in question. Sections 3, 4, and 5 present some exploratory corpus data and two acceptability judgement studies to investigate the availability of the construction for demoting previously mentioned referents, followed by a final discussion and conclusion in Section 6.

## 2. The *-no/-to* construction in Polish

6 The constructions we are dealing with here are impersonal in Siewierska's (2008: 116) sense of not having a canonical subject. They are R-impersonals in Malchukov and Ogawa's (2011: 44) terminology, because the main characteristic that distinguishes their subjects from a canonical subject is their reduced referentiality. Gast and Van der Auwera (2013: 123) call these constructions “human impersonal pronouns” (although the Polish construction examined here does not contain a pronoun and should thus be called a *human impersonal construction*). They have also been called “arb constructions” (Cinque, 1988: 544) or just “arbs” (Malamud, 2013: 1, defining this as a shorthand for “constructions with arbitrary interpretations”). These categories have been listed here with increasing granularity, so that arbs are a subset of human impersonal constructions, which are a subset of R-impersonals, which in turn are a subset of impersonal constructions.

7 The Polish language has at least three arb constructions: a slightly colloquial impersonal third person plural, as in [3], a reflexive impersonal, as in [4], and the *-no/-to* construction that is our main interest in this paper, as in [5].

[3] *Na zebraniu mówi-l-i o naprawie dróg.*  
 at meeting talk-PST-3PL.MP about repair streets:GEN  
 ‘At the meeting (people)<sup>1</sup> talked about street repairs.’  
 (Doros, 1975: 81)

[4] *Na zebraniu mówi-ł-o się o naprawie dróg.*  
 at meeting talk-PST-3SG.N REFL about repair streets:GEN  
 ‘At the meeting (people) talked about street repairs.’

[5] *Na zebraniu mówio-no o naprawie dróg.*  
 at meeting talk-PST.IMPRS about repair streets:GEN  
 ‘At the meeting (people) talked about street repairs.’

8 The *-no/-to* form is formed by attaching a suffix that has the two allomorphs *-no* (e.g., in [5]) and *-to* (e.g., in [6]) to the verb stem. It is etymologically derived from the nominative/accusative singular neuter form of the passive participle (which is where the *-n-* vs. *-t-* allomorphy comes from, cf. also English *spoken* vs. *talked* or *meant*), but synchronically it is no longer homonymous with any form of this participle because the nominative/accusative singular neuter of the participle nowadays ends in *-n-e/-t-e*. Furthermore, in contrast to the actual passive participle, the *-no/-to* construction has to be regarded as a finite verb form, because it does not need an auxiliary and is inherently preterite (see [5]). Therefore, it cannot be used in present or future contexts<sup>2</sup>.

9 Syntactically, the *-no/-to* construction has to be classified as active, because direct objects retain accusative case, as in [6].

[6] *Wypi-to cał-ą butelk-ę.*  
 drink-PST.IMPRS whole-ACC.SG.F bottle.F-ACC.SG  
 ‘(People) emptied the whole bottle.’  
 (Rothstein, 1993: 713)

10 Semantically, the agent of the event that the *-no/-to* form refers to is obligatorily [+ human] (Laskowski, 1984: 147; Kątny, 1999: 660; Sansò, 2006: 255). In contrast

1. In the current paper, we use *(people)* as an English equivalent of human impersonal pronouns, even though idiomatic English translations would often use paraphrases with the passive, *they*, *one*, etc.

2. However, the conditional can be formed from the *-no/-to* form with the marker *by* just as it is formed from other preterites: *mówiła* “she said” → *mówiłaby* “she would say”; *mówiono* “one said” → *mówiono by* “one would say”.

to similar constructions (especially the Polish reflexive impersonal<sup>3</sup>), a [- human] interpretation cannot even be coerced by a context suggesting a non-human agent (Kibort, 2008: 267). The *-no/-to* construction can be formed from transitive and both unergative and unaccusative intransitive verbs (Kibort, 2008: 265; Krzek, 2018: 311). However, it is more acceptable with fully agentive verbs such as *pracować* “work” or *ogłądać* “watch” than with less agentive verbs such as *marznąć* “feel cold” or *posiadać* “own” and is ungrammatical with non-agentive verbs such as *bhyszczyć* “glisten” (Bunčić, 2019; Kretzschmar et al., 2022).

### 3. Referring to demoted agents vs. demoting agents

11 According to Bunčić (2019: 72-73), the *-no/-to* construction can refer to demoted agents (as in [5] and [6] and thus similarly to [1]), but it cannot demote an agent who has already been mentioned prominently in the preceding discourse (as in the English example in [2]). Specifically, Bunčić refers to test items in which the agents of the *-no/-to* form were “topical” and were mentioned in the previous sentence, which received a relatively low rating.

12 Bunčić (2019: 72) reported that a search in the National Corpus of Polish (NKJP) revealed that the *-no/-to* form “is only used when there are different topics in the preceding text”. As an additional empirical test of this hypothesis, we conducted a corpus search for the German human impersonal pronoun *man* in parallel corpora (InterCorp and ParaSol) to specifically find those contexts in which German *man* is used to demote a discourse-prominent agent. The analysis shows that Polish authors/translators indeed often avoid using the *-no/-to* construction in such cases. For instance, in [7], German *man* obviously refers to the two people mentioned, and in [8], to the crowd/people attending the trial; consequently, the Polish translators rephrase the passages, using an anaphoric 3PL form (with pro-drop) instead of an impersonal construction:

[7] **German original:** *Angst hatten alle beide. Dückerhoff mehr als Koljaiczek; denn man befand sich in Rußland.*  
 ‘They were both afraid. Dückerhoff more than Koljaiczek: for now (people) were in Russia.’

3. While Kibort’s (2008: 272) example *Gdy się jest bocianem, gniazdo buduje się wysoko* “When one is a stork, one builds the nest high up” seems a bit artificial, there are real-world examples of contexts coercing a non-human interpretation of the reflexive impersonal, e.g. [i]:

[i] *zazwyczaj rani się [hurt.3SG.REFL] tych, których najbardziej się kocha [love.3SG.REFL], zwłaszcza jeśli się jest [be.3SG.REFL] fuolornijskim smokiem ognistym o oddechu jak napęd rakietowy i z kłami jak stalowe sztachety.*

‘one so often hurts the one one loves, especially if one is a Fuolornis Fire Dragon with breath like a rocket booster and teeth like a park fence.’

(InterCorp: Douglas Adams, *So Long, and Thanks for All the Fish*, 1984; idem, *Cześć, i dzięki za ryby*, transl. Paweł Wiczorek, 1995)



**Polish translation:** *Obaj mieli stracha. Dückerhoff bał się bardziej niż Koljaiczek; znajdowali się przecież w Rosji.*

‘They were both afraid. Dückerhoff more than Koljaiczek: for now they were in Russia.’

(InterCorp: Günter Grass, *Die Blechtrommel*, 1959; idem, *Blaszany bębenek*, transl. Sławomir Baut, 1994)

- [8] **German original:** *Nun stand er Aug in Aug dem Gedränge gegenüber. Hatte er die Leute richtig beurteilt? [...] Hatte man sich verstellt, solange er gesprochen hatte, und hatte man jetzt, da er zu den Schlussfolgerungen kam, die Verstellung satt?*

‘Now he stood face to face with the crowd. Had he judged the people properly? [...] Had (people) been putting up a pretence all the time he had been speaking, and now that he had come to the conclusion, were (people) tired of pretending?’

**Polish translation:** *Teraz stanął oko w oko z tłumem. Czy nie ocenił trafnie tych ludzi? [...] Czyżby maskowali się w czasie jego przemówienia, a teraz, gdy doszedł do końcowych wniosków, mieli dość udawania?*

‘Now he stood face to face with the crowd. Had he judged the people properly? [...] Had they been putting up a pretence all the time he had been speaking, and now that he had come to the conclusion, were they tired of pretending?’

(InterCorp: Franz Kafka, *Der Prozeß*, 1990; idem, *Proces*, transl. Bruno Schulz, n.d.)

- 13 In [9], the German original, by using *man*, seems to imply that the soldier is not the only one who leaves the prisoner alone (although he might have been the one who closed the door). The Polish translator, in the sentence preceding the one explicitly mentioning the soldier, uses a -no/-to construction, which most probably refers to the soldier as well, but in the sentence after the explicit mention she avoids using another -no/-to construction by interpreting the German *man* as referring exclusively to the soldier and replacing it with a personal 3SG form.

- [9] **German original:** [...] *seine Fesseln wurden zum Teil gelöst [untie.PST.PASS.3PL], ein Soldat brachte einen Wasserkrug und stellte ihn auf den Steinboden, man [PRO.IMPS] ließ ihn allein, schloß und verriegelte die Tür.*

‘[...] his bonds were partially removed, a soldier brought a jug of water and placed it on the stone floor, (people) left him alone and closed and locked the door.’

**Polish translation:** [...] *więzy częściowo mu zdjęto [untie.PST.IMPS], żołnierz przyniósł dzbanek wody, postawił go na kamiennej podłodze, pozostawił [leave.3SG] więźnia w samotności, zamykając i ryglując drzwi.*

‘(People) partially removed his bonds, a soldier brought a jug of water, placed it on the stone floor, and left the prisoner alone, locking and bolting the door.’

(InterCorp: Hermann Hesse, *Das Glasperlenspiel*, 1987; idem, *Gra szklanych paciorków*, transl. Maria Kurecka, 2007)

14 Thus, these corpus examples give at least anecdotal evidence that the *-no/-to* form is often avoided in contexts where its referent is a noun phrase (NP) that is prominent in the preceding discourse. In order to find out if this observed avoidance is really caused by a constraint on the use of the *-no/-to* form, we devised an experiment.

#### 4. Experiment 1: givenness and recency

##### 4.1. Hypotheses

15 So far it is not clear which discourse feature is responsible for the effect we observed in the corpus. Bunčić (2019: 72) mentioned topicality (in the sense of the NP being the sentence topic in its sentence), but it might just as well be the mere fact of being previously mentioned. Therefore, for our first experiment we decided to use test sentences in which the referent of the *-no/-to* form is either mentioned as a clear sentence topic and syntactic subject, or not mentioned at all. Furthermore, a recent mention as the topic of the immediately preceding sentence might be more impeding than a mention much earlier in the text with several sentences in between. If both factors play a role, we would assume that a *-no/-to* construction referring to a referent explicitly mentioned much earlier in the text (FAR) should be less acceptable than if the referent has not been mentioned at all (NEW), but nevertheless more acceptable than if the reference is in the immediately preceding sentence (RECENT):

[10] NEW > FAR > RECENT

16 If only previous mention is relevant and recency plays no role, we would expect no significant difference between the FAR and the RECENT condition but still an advantage for the NEW condition:

[11] NEW > (FAR = RECENT)

17 And if only topics of the immediately preceding sentences are relevant and much earlier mentions have already been bleached enough to allow for the unimpeded use of a *-no/-to* construction implying the referent of the far away NP as its agent, the NEW and FAR conditions should have the same acceptability rate:

[12] (NEW = FAR) > RECENT

18 Note that our experiment cannot distinguish whether the condition marked as RECENT has an effect because of topicality or because of recency, because the relevant NP is both mentioned in the sentence immediately preceding the *-no/-to* construction and is the topic of that sentence. Consequently, if such an effect is found at all, we will need another experiment to tease these factors apart.

## 4.2. Test items and questionnaire design

- 19 This experiment was designed as an acceptability judgement test with twelve test items and thirteen fillers. Since Bunčić (2019) and Kretzschmar et al. (2022) have shown that the *-no/-to* form is rated better the more agentive the verbs are, we chose *-no/-to* forms that are formed from highly agentive, transitive, perfective verbs for the test items, as depicted in [13].

[13] *zjeść* ‘eat’, *otworzyć* ‘open’, *przestawić* ‘rearrange’, *ściągnąć* ‘call’, *złożyć* ‘lay down’, *dodać* ‘add’, *zbudować* ‘build’, *odwrócić* ‘turn’, *zrobić* ‘do’, *rozwiązać* ‘untie’, *zabić* ‘kill’, *wziąć* ‘take’.

- 20 These twelve *-no/-to* forms were then put into larger contexts, consisting each time of four sentences in total, which were formed in alignment with the three factors under investigation: NEW, FAR and RECENT. Consequently, each context was formed differently in order to examine the relation of the implicit agent of the *-no/-to* construction to its hypothetical referent, depending on the placement of the latter in the given test item. The *-no/-to* construction was always placed in the last of the four sentences, and the three preceding sentences were constructed according to the following scheme: without any NP referring to an agent of the *-no/-to* construction in the NEW context; with a plural NP mentioning the same referent that the *-no/-to* construction implies at the beginning of the first sentence in the FAR context; with such an NP in the sentence directly preceding the *-no/-to* construction in the RECENT context. Examples of the test items are shown in [14]-[16].

[14] NEW: *Nadszedł dzień otwarcia nowej restauracji. W powietrzu unosił się przyjemny zapach duszonych warzyw. Na zewnątrz gromadziły się tłumy zaciekawionych ludzi. Otworzono drzwi dla klientów.*

‘The opening day of the new restaurant had arrived. The pleasant smell of stewed vegetables was in the air. Crowds of curious people were gathering outside. **(People) opened** the doors for the customers.’

[15] FAR: *Kelnerzy krzątali się w restauracji. W powietrzu unosił się przyjemny zapach duszonych warzyw. Na zewnątrz gromadziły się tłumy zaciekawionych ludzi. Otworzono drzwi dla klientów.*

‘Waiters were bustling around the restaurant. The pleasant smell of stewed vegetables was in the air. Crowds of curious people were gathering outside. **(People) opened** the doors for the customers.’

[16] RECENT: *W powietrzu unosił się przyjemny zapach duszonych warzyw. Na zewnątrz gromadziły się tłumy zaciekawionych ludzi. Kelnerzy krzątali się w restauracji. Otworzono drzwi dla klientów.*

‘The pleasant smell of stewed vegetables was in the air. Crowds of curious people were gathering outside. Waiters were bustling around the restaurant. **(People) opened** the doors for the customers.’

- 21 In addition to the twelve test items for each questionnaire, as mentioned above, we used thirteen fillers (seven positive and six negative control items), each of them resembling the structure of the test items and consisting of four sentences but without any *-no/-to* form, and presented them to the participants. The content of the fillers was taken mainly from various articles published on diverse Polish internet sites, like the example in [17] (a positive control item):

[17] *Rudnowskie jezioro umierało blisko 20 lat. Ekolodzy i eksperci alarmują, że jeśli nie podejmie się odpowiednich działań, kolejne pokolenie odczuje dotkliwe skutki zmian klimatu. Jezioro w Rudnie potrzebowało dokładnie jednego pokolenia, aby praktycznie zniknąć z powierzchni ziemi. Podobny los może spotkać inne jeziora w Polsce.*

‘The Rudnowskie Lake has been dying for nearly 20 years. Environmentalists and experts are sounding the alarm that, if appropriate action is not taken, the next generation will suffer the harsh effects of climate change. It took exactly one generation for the Rudnowskie Lake to virtually disappear from the face of the earth. A similar fate could befall other lakes in Poland.’

(<https://natemat.pl/364713,po-jeziorze-zostala-tylko-nazwa-reportaz-z-rudna-jeziorowego>)

- 22 The negative control items consisted of similar text excerpts from the internet, which were manipulated to contain grammatical errors in part of the last sentence, as in [18].

[18] Rybie            ważą            45 kilogramami  
fish.SG.DAT    weigh.3PL    45 kilogram.PL.INS  
instead of  
Ryba            waży            45 kilogramów  
fish.SG.NOM   weigh.3SG    45 kilogram.PL.GEN  
‘The fish weighs 45 kilograms.’

- 23 The test items were distributed over three different questionnaires, each containing 12 test items (4 RECENT + 4 FAR + 4 NEW items) and the 13 fillers (positive and negative control items), using a Latin square design. The questionnaires were pseudorandomized, so that no two test items were immediately adjacent and the test started and ended with a filler. For each questionnaire, an exact copy in reverse order was created, so that the total number of questionnaires was six. The participants had to rate the acceptability of the test items using a six-point Likert scale, ranging from “– – –” (completely unacceptable) to “+ + +” (completely acceptable). The acceptability test was made available to the participants via an online questionnaire hosted by SoSciSurvey and distributed using Prolific.

### 4.3. Participants

- 24 In total, 81 test persons participated in the experiment; 80 of them completed a questionnaire. All test persons indicated Polish as their native language; three

people also gave English and one of them also German as further native languages (probably by mistake, indicating foreign languages they knew instead of additional native languages; as users of Prolific, all had declared themselves to be monolingual). All participants were residents of Poland. The participants were between 18 and 45 years old and 56% of them were male. A majority of the test persons had a higher education level, as 36% were currently enrolled at a university and 20% held an academic degree, whereas 34% had secondary education only. 12% of the participants stated that they had elementary, secondary and vocational education.

#### 4.4. Results and interim discussion

25 Figure 1 displays the results obtained, indicating the average rating for each of the contexts on a normalized scale from -1 to 1 (i.e., “- - -” = -1.0, “-” = -0.2, “+ +” = 0.6, etc.). Numerically positive values indicate that the items were on average rated above the middle value and vice versa; *n* indicates the number of individual judgements that the average is based on.

26 It is clear from Figure 1 that the differences between the grammatical items are small. A single-factor ANOVA shows that neither the difference between the NEW and the RECENT condition ( $p \approx 0.054$ ) nor the one between the NEW and the FAR condition ( $p \approx 0.071$ ) is statistically significant, although the values are not too far away from the 0.05 threshold. There is, of course, also no significant difference between the FAR and RECENT conditions ( $p \approx 0.89$ ).



Figure 1 – Results of Experiment 1

27 The results indicate that there might be a correlation between the distribution  
of the *-no/-to* construction and the discourse factors examined, which might have  
been blurred by confounding factors, but recency is clearly irrelevant. This can be  
summed up as in [19]:

[19] NEW  $\cong$  (FAR = RECENT)

28 However, the data do not provide clear evidence at this stage of investigation and  
further research was therefore deemed necessary in order to evaluate if the selected  
factors are relevant or not. The lack of evidence of the parameters investigated in  
this experiment might be a product of insufficient accuracy and concentration on  
the part of the test persons due to the length of the items (four sentences each),  
which in turn might have affected the processing of the test items.

29 Furthermore, if (partial) coreference between an explicit NP and the implicit  
agent of the *-no/-to* form is an impediment to the use of this form, a native speaker  
reading a text containing precisely such a passage might try to interpret it in such a  
way that the two referents are not identical. For example, in [16] above, the reader  
might assume that it is not the waiters who are opening the doors for the customers  
but the cooks or scullions or even the chef herself. The implicitness of the reference  
of the *-no/-to* construction makes this kind of inference possible.

30 Another problem might have been that next to the clearly ungrammatical  
negative control items the subtlety of the semantic clash in the two conditions with  
the previously mentioned referents might have been hard to notice, or these items  
might have been perceived as too good in relation to the ungrammatical sentences  
to produce a statistically significant difference from the items without this clash.

31 It was therefore decided to conduct another experiment designed to rule out  
these confounding factors.

## 5. Experiment 2: only givenness

### 5.1. Hypothesis

32 The aim of the second experiment was to acquire more concrete data that might  
confirm or refute the initial hypothesis. In order to disambiguate the possible outcome  
we decided to improve the previous test design by making it less complex. Therefore,  
we reduced the number of sentences per test item to two instead of four and did  
the same for the fillers. This was possible because Experiment #1 had indicated that  
the distance between the NP and the *-no/-to* construction was not relevant; it was  
therefore sufficient to test the conditions NEW and RECENT.

33 In order to make sure that the participants made the connection between the  
referent of the NP and the implicit agent of the *-no/-to* construction, we introduced  
an additional task, in which we asked an open question about the performer of

the action indicated by the *-no/-to* form. These questions were related both to the test items of the RECENT condition and to the positive control items. We refrained from presenting the negative control items to the participants. While improving the test design we also tried to create a more natural text structure of the test items by inserting adverbials at the beginning of the sentence containing the *-no/-to* construction.

- 34 By analogy with the first experiment, we assumed that if previous mention and/or topicality plays a role in constraining the use of the *-no/-to* construction, the items should be rated as more acceptable in the NEW than in the RECENT condition.

[20] NEW > RECENT

- 35 By halving the number of tested sentences in each test item we expected to gain clearer and more accurate data, which would provide support for our hypothesis.

## 5.2. Test items and questionnaire design

- 36 The experiment consisted in total of 12 newly created pairs of test items with additional open comprehension questions and 18 positive fillers. The larger number of fillers allowed for a more “random” allocation of the test items. Among the fillers were 13 newly created ones with open comprehension questions and 5 fillers from the previous experiment (in a reduced form) without any additional questions. We used the same verbs for the formation of the *-no/-to* form as in the previous experiment. See, for example, [21]-[25].

[21] RECENT: *Studenci wbiegli do stołówki na kilkanaście minut przed jej zamknięciem. Szybko zjedzono obiad, po czym trzeba było rozejść się do domów.*

‘The students rushed into the canteen a few minutes before it closed. (People) ate dinner quickly, after which it was necessary to go home.’

[22] Comprehension question for [21]:

*Kto zjadł obiad w stołówce?*

‘Who ate lunch at the canteen?’

[23] NEW: *W studenckiej stołówce przez megafon rozległ się komunikat o jej rychłym zamknięciu. Szybko zjedzono obiad, po czym trzeba było rozejść się do domów.*

‘A megaphone in the student canteen announced its imminent closing. (People) ate dinner quickly, after which it was necessary to go home.’

[24] Positive control item:

*Aktorzy Teatru Narodowego w Warszawie byli niezadowoleni ze swojego wynagrodzenia. W ramach protestu zawiesili swój udział w planowanych przedstawieniach teatralnych.*

‘The actors of the National Theatre in Warsaw were dissatisfied with their salary. In protest, they suspended their participation in the scheduled theatrical performances.’

[25] Comprehension question for [24]:

*Kto zawiesił udział w zaplanowanych przedstawieniach teatralnych?*

‘Who suspended participation in the scheduled theatrical performances?’

37 Just like the previous one, the experiment was conducted in the form of an acceptability judgement test via an online questionnaire on SoSciSurvey, distributed on Prolific. Again, we used a 6-point Likert scale. The items were distributed in a Latin square design across two questionnaires, which were pseudorandomized and doubled by copying them in reverse order. Each questionnaire contained 12 test items and 18 positive fillers.

### 5.3. Participants

38 Sixty-seven people took part in the experiment. There were slightly more men than women among the participants, making up 55% of the test persons. All the test persons indicated Polish as their mother tongue and Poland as their place of residency. One person stated that he was a native speaker of English as well (probably by mistake, as in Experiment 1), the others declared themselves to be monolingual. The participants were between 18 and 67 years old. Almost half of the participants (46%) had a higher education level (holder of an academic degree or enrolled as students), followed by people with secondary education (46%), whereas only a small percentage of the participants indicated having lower secondary and vocational education (7.5%).



Figure 2 – Results of Experiment 2



#### 5.4. Results

39 The results of the second experiment are presented in Figure 2. The *-no/-to* construction was rated slightly better in the RECENT than in the NEW condition, which implies that neither topicality nor previous mention in general seem to have a decisive impact on its usage and do not constrain its occurrence in the following discourse. The difference between the NEW and RECENT contexts was not significant ( $p \approx 0.07$ , single-factor ANOVA; and even the numerical values in this case point in the opposite direction of our hypothesis). In this experiment, the difference between the positive control items on the one hand and both test item groups on the other turned out to be statistically highly significant ( $p < 0.001$ ). The result can be summed up as in [26].

[26] NEW = RECENT

40 The vast majority of answers to the open comprehension questions for the test items (307 out of 356, i.e. 86%) clearly indicate the group of people expressed by the plural NP mentioned in the preceding sentence as the agent of the *-no/-to* construction. (In some cases respondents gave synonyms, hypernyms, or paraphrases.) However, there were also some answers that show that in some cases participants perceived the agent expressed by the impersonal *-no/-to* construction as vague. They expressed their uncertainty by giving answers ranging from open statements such as “it is not certain”, “I don’t know” to indications of the referents of the plural NP with some expression of doubt such as “by implication, the employees” or “the police officers?”. Very few answers were simply wrong and had nothing to do with any semantic generalizations or rephrasing (e.g., “the professors” with regard to “the politicians”). The complete list of answers to the open comprehension questions is given in the appendix (with the targeted NP printed in bold type).

#### 6. Final discussion and conclusion

41 The answers to the comprehension questions in Experiment 2 show that the respondents, while acknowledging that the impersonal *-no/-to* construction does not indicate any anaphoric reference, clearly identify the referent of the NP that is the topic of the immediately preceding sentence as the agent of the event denoted by the *-no/-to* form. Nonetheless, they rate these test items as just as acceptable as the items with no previous mention of the referent (with no statistically significant difference between the groups of items, and the numerical difference pointing in different directions in Experiments 1 and 2). Our initial hypothesis must therefore be rejected.

42 In view of this result, we did another extensive corpus search and managed to find a small number of indisputable examples of *-no/-to* forms implying the referents of a preceding NP as their agent, e.g. [27], although in these cases the NP is not the topic of the sentence.

[27] *Obradom, w których uczestniczyło 124 delegatów, przewodniczył [...] Kazimierz Czekaj. W trakcie zjazdu wybrano 15-osobowy zarząd [...].*

‘The session, in which 124 delegates participated, was presided over by [...] Kazimierz Czekaj. During the reunion (people) elected a 15-member council [...].’

(NKJP: *Dziennik Polski*, 13 Oct. 2003)

43 While the scarcity of these cases in the corpus is a fact, as are the clear signs of active avoidance of the construction in [7]-[9], this clearly does not make the construction less acceptable in this context. While in most cases there is a correlation between frequency and acceptability, it is well-known that the relationship is not implicational. Thus, it has been observed that “rareness of a pattern in a corpus does not entail lower acceptability” (Divjak, 2008: 213) or that “a verb being acceptable in a frame does not entail observing that verb in that frame” (White & Rawlins, 2020: 32). The use of the Polish *-no/-to* form immediately after a prominent NP explicitly referring to the agent of the event described by the verb is another example of this: it is perfectly acceptable, but – in contrast to the German use of *man* – people rarely use it, preferring a personal construction as the default construction for anaphoric reference.

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## Appendix: answers to the comprehension questions

Coreferent answers		Unclear and non-coreferent answers	
– <i>studenci</i> ‘the students’	29	– <i>chyba studenci</i> ‘I think the students’ – <i>prawdopodobnie studenci, wynika to z kontekstu, ale nie jest oczywiste</i> ‘probably the students, it follows from the context but is not obvious’ – <i>nie jest powiedziane</i> ‘this was not said’	1 1 1
– <i>pracownicy ratusza</i> ‘the employees of the town hall’ – <i>pracownicy</i> ‘the employees’ – <i>pracownicy miejskiego ratusza</i> ‘the employees of the municipal town hall’	15 5 1	– <i>burmistrz?</i> ‘the mayor?’ – <i>w domyśle pracownicy ratusza</i> ( <i>‘otwarto’</i> ) ‘by implication the employees of the town hall ( <i>‘otwarto’</i> )’ – <i>nie wiadomo/pracownicy ratusza</i> ‘unknown/the employees of the town hall’ – <i>radni</i> ‘council members’ – <i>nie ma podane kto otworzył</i> ‘there is no indication of who opened it’ – <i>nie wiadomo</i> ‘unknown’ – <i>nie wiem</i> ‘I don’t know’	1 1 1 1 1 1 1
– <i>policjanci</i> ‘the police officers’ – <i>policja</i> ‘the police’	16 1	– <i>nie wiadomo</i> ‘unknown’ – <i>policjanci?</i> ‘the police officers?’ – <i>policja?</i> ‘the police?’ – <i>nie podano tej informacji</i> ‘this information was not provided’ – <i>nie jest to napisane w tekście</i> ‘it is not written in the text’ – <i>osoba, która zgłaszała wydarzenie</i> ‘the person who reported the event’ – <i>chyba policjanci, lecz nie zostało to dokładnie określone</i> ‘probably the police officers, but it was not exactly specified’ – <i>prawdopodobnie świadkowie zdarzenia</i> ‘probably the witnesses of the incident’	3 2 1 1 1 1 1 1
– <i>politycy</i> ‘the politicians’ – <i>członkowie komisji sejmowych</i> ‘the members of the parliamentary committees’ – <i>politycy w komisji</i> ‘politicians on the committee’ – <i>parlamentarzyści</i> ‘the members of parliament’	22 1 1 1	– <i>studenci</i> ‘the students’ – <i>profesorzy</i> ‘the professors’ – <i>nie wiadomo</i> ‘unknown’ – <i>pasozyty</i> ‘vermin’	3 1 1 1

Coreferent answers		Unclear and non-coreferent answers	
<ul style="list-style-type: none"> <li>– <i>pierwszoklasiści</i> ‘the first-graders’</li> <li>– <i>pierwszaki</i> ‘the first-years’</li> <li>– <i>dzieci</i> ‘the children’</li> </ul>	<ul style="list-style-type: none"> <li>25</li> <li>1</li> <li>1</li> </ul>	<ul style="list-style-type: none"> <li>– <i>studenci</i> ‘the students’</li> </ul>	<ul style="list-style-type: none"> <li>1</li> </ul>
<ul style="list-style-type: none"> <li>– <i>członkowie rady miejskiej</i> ‘the members of the town council’</li> <li>– <i>członkowie rady</i> ‘the council members’</li> <li>– <i>rada miejska</i> ‘the town council’</li> <li>– <i>radni</i> ‘the city fathers’</li> <li>– <i>władze</i> ‘the authorities’</li> </ul>	<ul style="list-style-type: none"> <li>21</li> <li>3</li> <li>1</li> <li>1</li> <li>1</li> </ul>	<ul style="list-style-type: none"> <li>– <i>nie wiem</i> ‘I don’t know’</li> <li>– <i>prawdopodobnie członkowie rady miejskiej w obecności pozostałych uczestników wydarzenia</i> ‘probably the members of the town council in the presence of other participants of the event’</li> <li>– <i>uczniowie</i> ‘the pupils’</li> </ul>	<ul style="list-style-type: none"> <li>2</li> <li>1</li> <li>1</li> </ul>
<ul style="list-style-type: none"> <li>– <i>nauczyciele</i> ‘teachers’</li> </ul>	<ul style="list-style-type: none"> <li>22</li> </ul>	<ul style="list-style-type: none"> <li>– <i>nie wiadomo</i> ‘unknown’</li> <li>– <i>nie jest to pewne</i> ‘it is not certain’</li> <li>– <i>nauczyciele?</i> ‘the teachers?’</li> <li>– <i>prawdopodobnie jeden z nauczycieli</i> ‘probably one of the teachers’</li> <li>– <i>w domyśle nauczyciele/ktoś komu nakazali to zrobić (‘odwrócono’)</i> ‘by implication the teachers/someone who was ordered to do it (‘odwrócono’)</li> </ul>	<ul style="list-style-type: none"> <li>2</li> <li>1</li> <li>1</li> <li>1</li> <li>1</li> </ul>
<ul style="list-style-type: none"> <li>– <i>politycy partii rządzącej</i> ‘politicians of the ruling party’</li> <li>– <i>politycy</i> ‘politicians’</li> <li>– <i>nowa władza</i> ‘the new authority’</li> <li>– <i>rządzący</i> ‘the ones in power’</li> <li>– <i>nowo wybrany rząd</i> ‘the newly elected government’</li> <li>– <i>politycy partii rządzącej zaraz po wyborach</i> ‘the politicians of the ruling party right after the election’</li> <li>– <i>partia rządząca</i> ‘the ruling party’</li> </ul>	<ul style="list-style-type: none"> <li>13</li> <li>5</li> <li>1</li> <li>1</li> <li>1</li> <li>1</li> <li>1</li> </ul>	<ul style="list-style-type: none"> <li>– <i>nie było tej informacji w tekście</i> ‘this information was not in the text’</li> <li>– <i>politycy partii rządzącej, aczkolwiek nie było to dokładnie określone</i> ‘politicians of the ruling party, although it was not exactly specified’</li> <li>– <i>rządzący, brzmi prawdopodobnie bardzo</i> ‘the ones in power, sounds very probably’</li> <li>– <i>prawdopodobnie politycy partii rządzącej</i> ‘probably the politicians of the ruling party’</li> </ul>	<ul style="list-style-type: none"> <li>1</li> <li>1</li> <li>1</li> <li>1</li> </ul>
<ul style="list-style-type: none"> <li>– <i>robotnicy</i> ‘the workers’</li> <li>– <i>ekipa rozbiórkowa</i> ‘the demolition crew’</li> </ul>	<ul style="list-style-type: none"> <li>28</li> <li>1</li> </ul>	<ul style="list-style-type: none"> <li>– <i>możliwe, że demonterzy, ale napisane było „zabito”</i> ‘possibly the dismantlers, but there was written “zabito”’</li> <li>– <i>robotnicy?</i> ‘the workers?’</li> <li>– <i>osoby mające dokonać demontażu i remontu dworca</i> ‘the people who had to dismantle and renovate the station’</li> </ul>	<ul style="list-style-type: none"> <li>1</li> <li>1</li> <li>1</li> </ul>
<ul style="list-style-type: none"> <li>– <i>psycholodzy</i> ‘the psychologists’</li> <li>– <i>psychologowie</i> ‘the psychologists’</li> <li>– <i>naukowcy</i> ‘the scientists’</li> </ul>	<ul style="list-style-type: none"> <li>19</li> <li>5</li> <li>1</li> </ul>	<ul style="list-style-type: none"> <li>– <i>psycholodzy (lub ich pomocnicy)</i> ‘the psychologists (or their assistants)’</li> <li>– <i>nie wiadomo, być może psycholodzy</i> ‘unknown, perhaps the psychologists’</li> <li>– <i>skupiłem się na czymś innym XDD</i> ‘I focused on something else XDD’</li> </ul>	<ul style="list-style-type: none"> <li>1</li> <li>1</li> <li>1</li> </ul>

Coreferent answers		Unclear and non-coreferent answers	
– <i>paparazzi</i> ‘the paparazzi’	31		
– <i>dziennikarze</i> ‘the journalists’	1		
– <i>pracownicy butiku z markową odzieżą</i> ‘the employees of a boutique with designer clothes’	2	– <i>na środek</i> ‘to the middle’	1
– <i>pracownicy butiku</i> ‘the boutique employees’	20		
– <i>pracownicy</i> ‘the employees’	4		
– <i>pracownicy sklepu</i> ‘the shop employees’	4		