Neg-words and NPIs in Czech
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1 Introduction[1]

Linguists commonly distinguish at least three different groups of expressions that are licensed by negation and environments that share important inferential properties with negation. First, there are weak Negative Polarity Items (weak NPIs). The English expressions *any*, *anything* or *ever* are examples of weak NPIs, (1-a). Then there are strong Negative Polarity Items (strong NPIs) exemplified by the English adverbial phrase *until his birthday* in a clause with a punctual predicate, (1-b). Finally, there are neg-words like Czech *nikoho* `anybody' in (1-c).[2] For the semantic research establishing and distinguishing weak and strong NPIs, see Ladusaw (1979), Horn (1996), Zwarts (1998), Gajewski (2011), a.o. For the research establishing and studying neg-words in negative-concord languages and dialects, see Labov (1972), Progovac, (1993), Zanuttini (1997), van der Wouden (1997), Zeijlstra (2004), a.o..

(1) a. Peter didn't see anything.
    b. Peter didn't leave until his birthday.

	c.	Petr	tam	nezná	nikoho.
		Petr	there	NEG-knows	no-who.ACC
		'Peter doesn't know anybody there.' $\neg\exists x[Person'(x) \wedge Know'(Petr, x)]$			

It has been argued that the weak vs. strong NPIs are empirically characterized by the environments in which they are licensed, namely, strong NPIs are licensed by the subset of licensors that license weak NPIs (Zwarts, 1998, Gajewski, 2011). The most commonly mentioned licensors for strong NPIs include negation, negative quantifiers and the preposition *without* and there is some contention whether *few* can also license strong NPIs. Weak NPIs are licensed by the same elements that license strong NPIs but they can also appear in conditionals, in the scope of *only* and the quantifier *at most X*, among others (e.g., Gajewski, 2011). Since the environments are at least descriptively quite well understood, the two types of NPIs are easy to distinguish from each other. The licensing conditions of neg-words, in contrast to weak and strong NPIs, are often defined in syntactic terms (Progovac, 1993, Zeijlstra, 2004). Interestingly, the licensing environments of neg-words, often simply listed as consisting of negation, negative quantifiers and possibly the preposition *without* (Giannakidou and Zeijlstra, 2017), shows strong similarities to the licensing environment of strong NPIs. This opens up the question of whether neg-words in negative-concord languages can be and should be distinguished from strong NPIs.

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[2] All data come from Czech or English unless indicated otherwise.

While a significant amount of research showed that neg-words in negative-concord languages differ from weak NPIs (e.g., Progovac, 1993, Zanuttini, 1997, Zeijlstra, 2004), it is less clear whether the same can be said about neg-words and strong NPIs. We discuss two experiments in Czech that address this question. The experiments show that at least one expression in Czech, the modifier *ani* 'even', can be characterized as a strong NPI but the expression also shows a variable behavior (bear in mind that Czech *ani 'even'* in its strong NPI version resembles mostly English *even one* which was argued to be NPI by Crnič 2014 a.o.). There is inter-speaker variation in Czech whether to classify *ani* as a purely strong NPI or a purely neg-word or something in between. As we will see native speakers can be ordered on a scale of how likely they consider *ani* one or the other. This finding is relevant the analysis of negation, as well as the acquisition of negative elements and, potentially, for the studies on inter-speaker variation.

The rest of the paper is organized as follows. In Section 2 we briefly summarize the licensing conditions for neg-words and strong and weak NPIs. After the summary, we fully specify the research questions in Section 3. In Section 4, we provide descriptive summaries of two expressions on which it will be studied whether strong NPIs and neg-words co-exist in Czech. These expressions are *ani* 'even' and *žádný* 'any'. In Section 5, we discuss two experiments supporting the evidence that *ani* 'even' behaves like a strong NPI but that there is inter-speaker variation with respect to the categorization of this item. Section 6 provides a brief conclusion.

2   Properties of neg-words and NPIs in Czech

In this section, we summarize the main properties of neg-words and NPIs that are relevant for the rest of the study.
There are several properties that NPIs and neg-words share. The most obvious one is that NPIs and neg-words have to be licensed and that negation is one of the possible licensors. Another shared property is that NPIs and neg-words do not contribute to the interpretation of negation. This can be seen in the most explicit way in case of neg-words like Czech *nikoho* `anyone' in (1-c) and the translation of the sentence into predicate logic: even if both the negation on the verb and the negation on the indefinite pronoun (the prefix *ni-*, preceding the root *kdo* 'who': nominative form of the accusative *koho* 'whom' from (1-c)) contribute two morphological negation to the sentence, the resulting meaning has only one semantic negation. One way to understand this property is that the negation of NPIs and neg-words is not interpreted.

This last point differentiates NPIs and neg-words in Czech from negative quantifiers like *nobody* in Non-Standard English. Consider (2). In (2-a) the number of semantic negations mirrors the number of morphological negations: both the negation on the verb and the negative quantifier contribute semantic (besides the morphological) negation to their sentences. In contrast, in Czech both (2-b) and (2-c) are interpreted as carrying a single negation. The closest translation of (2-a) into Czech would have to use negation in an embedding sentence. To highlight this difference between English negative quantifiers and Czech neg-words, we translate Czech neg-words using NPIs like 'any' or 'even one'. While both neg-words and NPIs do not contribute to the interpretation of negation, they are distinguished by their ability to appear as fragmentary answers: the widely accepted observation is that neg-words are licit fragmentary answers while NPIs are not (see Giannakidou and Zeijlstra 2017 and Section 5.1).

(2) a. Pete didn't see nobody.
 r
$\neg\exists x\left[Person'(x) \wedge \neg See'(Peter, x)\right]$

Non-Standard English

	b.	Petr	ne-viděl	ani	jednu	osobu.
		Petr	NEG-saw	even	one	person
		'Peter didn't see even one person.' $\neg\exists x\left[Person'(x) \wedge See'(Petr, x)\right]$ (Czech)				

	c.	Petr	ne-viděl	nikoho.
		Petr	NEG-saw	no-who.ACC
		'Peter didn't see anyone.' $\neg\exists x\left[Person'(x) \wedge See'(Petr, x)\right]$		

We now turn to the three classes of negative elements: weak NPIs, strong NPIs, and neg-words. We briefly formulate their licensing conditions, as commonly accepted in theoretical literature.

2.1 Licensing conditions of weak NPIs

We follow the main research tradition that defines the licensing condition of weak NPIs semantically (Ladusaw 1992; Zwarts 1998; Gajewski 2011, a.o). The semantic approach argues that the contexts licensing weak NPIs share the same entailment pattern. In particular, weak NPIs are licensed in downward-entailing contexts. In informal terms, downward entailing contexts are those contexts which allow "subset" inferences. These are those contexts in which we can reason from sets to their subsets.

As an example of set-subset relation, consider pork, which is a type of meat, and consequently, the things that are pork form a subset of the things that are meat. Therefore, we would expect that one can infer from 'eat meat' (set) to 'eat pork' (subset) in environments licensing weak NPIs. Indeed, this seems to hold. For example, negative clauses license weak NPIs and they license "subset" inferences. The latter point is shown in (3). As we can see, we can infer from (3-a), which includes the predicate 'eat meat', to (3-b), which includes the predicate 'eat pork'. In contrast, positive sentences do not license weak NPIs and do not license "subset" inferences. The latter point is shown in (4), which shows that the reverse (upward-entailing) pattern holds in positive sentences, namely, from a set "eat pork" to its superset "eat meat", see (4-a) and (4-b).

(3) a.   Peter   didn't   eat   meat   yesterday.
     b.   →Peter   didn't   eat   pork   yesterday.

(4) a. Peter   ate   pork   yesterday.
     b. →Peter   ate   meat   yesterday.

There is an ongoing debate why the downward-entailing property is important for licensing weak NPIs. The theoretical positions in the debate range from a pragmatic perspective on the licensing conditions, see (Heim 1984; Kadmon & Landman 1993; Krifka 1995; Chierchia 2013; Crnič 2014), to approaches that could be classified as belonging to semantics (Kusumoto and Tancredi 2013; Barker 2018). Whatever the proper explanation of the role of downward entailment for weak NPIs turns out to be, current approaches agree that NPI licensing has a strong semantic component.

The semantic core of weak NPI licensing can be further demonstrated with the examples in (5). (5-a) is a grammatical sentence because the downward entailing quantifier *maximálně dva studenti* 'maximally two students' (*Maximally two students ate meat* implies that *Maximally two students ate pork* but not wise versa) licenses the Czech weak NPI *sebemenší tušení* `slightest idea.' The negation in (5-b) works similarly, but the upward entailing quantifier *minimálně dva studenti* `minimally two students' in (5c) cannot license the weak NPI, hence the sentence is ungrammatical.

(5)	a.	Maximálně	dva	studenti	měli	sebemenší	tušení	o	algebře.
		maximally	two	students	had	slightest	idea	about	algebra
		'Maximally two students had the slightest idea about algebra.'							

	b.	Petr	ne-měl	sebemenší	tušení	o	algebře.
		Petr	NEG-had	slightest	idea	about	algebra
		'Petr didn't have the slightest idea about algebra.'					

	c.	*Minimálně	dva	studenti	měli	sebemenší	tušení	o	algebře.
		minimally	two	students	Had	slightest	idea	about	algebra
		'Minimally two students had slightest idea about algebra.'							

2.2 Licensing conditions of strong NPIs

Strong NPIs can appear in the subset of environments that accept weak NPIs. One of the standard notions used to formalize the strong NPIs distribution is anti-additivity. In informal terms, anti-additivity guarantees that a narrow scope disjunction (disjunction in the scope of the licensor) is equivalent to wide scope conjunction (conjunction that has the licensor in its scope).[3]

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[3] To be more precise, we follow Zwarts (1998) a.o. in decomposing De Morgan's Laws into into four entailments: (i) $f(X) \vee f(Y) \Rightarrow f(X \wedge Y)$; (ii) $f(X \vee Y) \Rightarrow f(X) \wedge f(Y)$; (iii) $f(X) \wedge f(Y) \Rightarrow f(X \vee Y)$; (iv) $f(X \wedge Y) \Rightarrow f(X) \vee f(Y)$ and classifying various classes of NPI licensors according to the hierarchy of entailments they fulfill. Namely, downward entailing licensors satisfy first and second entailment, anti-additive ones first to third. Negation naturally satisfies all of them and as such is classified as anti-morphic. Next, we follow Gajewski (2005, 2007) who claims that strong NPIs are licensed in the anti-additive environments, Neg-raising being one of the most prolific. Czech *ani* NPIs are called by some researchers superstrong (see Krifka 1995 for a general framework and Dočekal & Šafratová 2019 for *ani*

Consider (6), which shows two elements that license weak NPIs: the negative quantifer *no one* and another quantifier *at most one student*. Since the equivalence between (6a) and (6b) is valid, we see that *no one* is anti-additive. This does not hold for *at most one student,* since the equivalence between (6c) and (6d) is not valid. To see the latter point, consider the situation in which one student drank and another student smoked. This makes (6d) true but (6c) is clearly false in this situation.

(6)	a.	No	one	smoked	or	drank.			
	b.	No	one	smoked	and	no	one	drank .	
	c.	At	mos t	one	student	smoked	or	drank .	
	d.	At	mos t	one	student	smoked	and	at mos t	one student drank .

The contrast between *no one* and *at most one* fits well with the acceptability of strong NPIs under those quantifiers (see Zwarts, 1998). While the strong NPI *until yesterday* is licensed by *no one* in (7a), it is not licensed by *at most one* in (7b). Other semantic explanations that make use of entailment properties (notably, Gajewski, 2011) also correctly predict this contrast.

(7)	a.	No	one	arrived	until	yesterday.	
	b.	*At	most	one	student	arrived	until	yesterday.

2.3 Licensing conditions of neg-words

Unlike NPIs, the licensing conditions of neg-words are standardly described in syntactic terms. Past approaches range from the application of the Binding theory to NPIs (see Progovac, 1993) to the application of Agree, couched within the paradigm of the Minimalist Program. The current standard description can be found in Zeijlstra (2004).

It was observed in the past that NPIs and neg-words are closely related (Laka 1990). Nevertheless, neg-words differ clearly from weak NPIs. This is demonstrated in (8). The sentences are parallel to the examples in (5), but weak NPIs are substituted by the neg-word *žádný* `any'. It holds for neg-words that only the negation in (8-b) can license them, in contrast to weak NPIs, which was also licensed by the quantifier *maximálně dva studenti* `maximally two students'. This brings neg-words very close to strong NPIs and their licensing condition.

(8)	a.	*Maximálně	dva	studenti	měli	žádné	tušení	o	algebře.
		maximally	two	students	had	Any	idea	about	algebra
		'Maximally two students had any idea about algebra.'							

	b.	Petr	ne-měl	žádné	tušení	o	algebře.

treated as a superstrong NPI) but we stick to the more conservative terminology in this article (see also Gajewski 2007:321-322 and his account of Romance neg-words as strong NPIs licensed by anti-additive operators).

		Petr	NEG-had	any	idea	About	algebra
		'Petr didn't have any idea about algebra.'					

	c.	*Minimálně	dva	studenti	měli	žádné	tušení	o	algebře.
		minimally	two	students	had	Any	idea	about	algebra
		'Minimally two students had any idea about algebra.'							

Linguists studying negative concord (Giannakidou 2006; Zeijlstra 2004; Jäger 2008; Penka 2011 a.o.) usually distinguish between strict negative concord languages (Greek, all current Slavic languages, as well as Hungarian, Romanian, and Japanese) and non-strict negative concord languages (certain Romance languages). In both types of languages, if a neg-word is in a postverbal position, then the verb has to be accompanied by the preverbal negative marker. However, when a neg-word appears in the preverbal position of a clause, then strict and non-strict negative concord languages differ. Spanish is an example of the second type. As we can see, it requires the negative marker in the postverbal position, (9-a), but when appearing pre-verbally, no negative marker is present, (9-b).

(9)	a.	No	lo	cree	nadie.
		NEG	it	believes	Anyone
		'Anyone doesn't believe it.'			

	b.	Nadie	lo	cree.
		anyone	it	believes
		'Anyone doesn't believe it.'		
		(Spanish, Daniel Vázquez Touriño, p.c.)		

The precise technical implementation of the neg-words syntactical licensing is not essential for the goals pursued in this chapter but let's just note that it usually takes the form of feature agreement. Like all other types of agreement, it obeys strict domain requirements. The domain required for the neg-word licensing is in Slavic languages even more stringent than in Romance, e.g., in Czech, unlike in Spanish (see Jäger, 2008), the neg-word dependency cannot cross a CP domain, be it subjunctive or indicative (see Błaszczak 2001:146-149 for extensive empirical arguments showing that only clause-mate negation licenses neg-words, irrespective of indicative, subjunctive, relative subordinate clauses or indirect questions).

As a strict negative concord language, Czech requires the preverbal negative marker irrespective of the neg-word(s) linearization with respect to the verb. This is demonstrated in (10): Czech allows both SV and VS linearization and when neg-words are accompanied by the negated verb as in (10-a) or (10-b), the sentence is grammatical. Neg-words with positive verbs as in (10-c) or (10-d) are unacceptable. This unacceptability is felt as very sharp. In the syntactic approaches to neg-concord the ungrammaticality is accounted for via the feature checking mechanism (Zeijlstra, 2004): the neg-words bear the uninterpretable feature [uNeg] which must be checked against an interpretable [iNeg] feature on another operator. Since in (10-c) and (10-d) only [uNeg] features are present, the uninterpretable features cannot be checked.

(10)
 a.   Nikdo   nepřišel.

anyone   NEG-came
`Anyone didn't come.'

b.   Nepřišel   nikdo.
       NEG-came   Anyone
`Anyone didn't come.'

c.   *Nikdo   přišel.
       Anyone   came
`*Anyone came.'

d.   *Přišel   nikdo.
       Came   anyone
`*Anyone came.'

In non-strict negative concord languages preverbal neg-words are followed by a positive verb and can furthermore license postverbal neg-words, as shown on the Italian example in (11). In contrast to that, strict negative concord languages always require verbal negation.

(11)

Qui	nessuno	regala	niente	a	nessuno
here	noone	gives	nothing	to	no one

`Here, no one gives anything to anyone.'
(Italian, Anna Maria Perissutti, p.c.)

The Czech counterpart of (11) would be (12-a) with an ungrammatical variation in (12-b): in strict negative concord languages like Czech, one neg-word never licenses another neg-word. The judgement is again very clear for native speakers.

(12)

a.   Nikdo   nevolal   nikomu.
       anyone   NEG-called   anyone
`Anyone did't phone to anyone.'

b.   *Nikdo   volal   nikomu.
       anyone   called   anyone
`*Anyone called to anyone.'

This strict licensing requirement is clearly reflected in the Czech National Corpus (CNC, Křen et al., 2015). We searched for sentences with [neg-word][verb][neg-word] sequences. We collected 249 examples like (13) and only two hits like (14) where the neg-words are at the first blush behaving like in non-strict negative concord languages – self-licensing one another. As it is clear from the translation, though, this is just an illusion. The problematic examples represent a case of homophony. In these examples the neg-word *nic* `anything' in fact means *zero*. *Zero,* despite its quasi-negative meaning, is well known to behave very differently both from neg-words, negative quantifiers and NPIs (see Bylinina & Nouwen 2018). As far as we know, the arithmetical context

where neg-words can be used with the meaning *zero* are the only exception to the strict negative concord rule in Czech.

(13)

Nikdo	neví	nic	jistého.
anyone	NEG-knows	anything	certain

`Anyone doesn't know anything certain.'

(14)

Nic	děleno	ničím	je	nic.
anything	divided	anything	is	anything

`Anything divided by anything is anything.'

Let us summarize: Czech neg-words must be licensed by a verbal negation. We adopt the standard and influential syntactic approach to their licensing requirements (Zeijlstra 2004 a.o.). In this theory, the licensing needs of the neg-words are explained via their uninterpretable syntactic features, which at the level of meaning leads to their treatment as regular indefinites. Semantically then neg-words are equated with indefinites and neg-words (in strict negative concord languages) like *nikdo* `anybody' have the same meaning as indefinites like *somebody*. We note in passing that there are possible alternative approaches to neg-word which assign them inherent negative meaning: see Zanuttini (1991), May (1989) de Swart and Sag (2002). But these approaches face serious difficulties when explaining the merging of the multiple neg-words negative meanings in one sentence, and they must propose ad hoc meaning composition rules like factorization, absorption, or polyadic quantification to deal with this problem. That's why we stick to the current standard syntactic approach to neg-words even if we acknowledge that it's not the only possible way to go (see also the eclectic approach of Kuhn 2021, which tries to come with a dynamic account of neg-word licensing and where Kuhn borrows tools from both traditions).

3 Research questions

In the previous section, we have seen that unlike weak NPIs and neg-words, which are clearly distinct with respect to their licensors, the difference between strong NPIs and neg-words is much less clear cut.

The anti-additivity, licensing strong NPIs, leaves negation, negative expressions like *no* or *never,* and the preposition *without* as the only potential licensors of strong NPIs. The same elements are known to license neg-words (Giannakidou and Zeijlstra 2017). This brings us to the following two questions:

(15)   a. Do negative-concord languages have strong NPIs as a separate class, not assimilated to neg-words?
       b. If they do, do all speakers treat strong NPIs (and neg-words) in the same way?

We will answer the first question affirmatively and the second question will be answered negatively. To address the questions, we will look at Czech as a representative of strict negative-concord languages and at the expression *ani* 'even', which, for reasons explained below, we see

as one of the best candidates for strong NPIs in Czech. Since, as we will see, the judgements regarding *ani* 'even' are relatively subtle and the ways to distinguish strong NPIs and neg-words are far from trivial, we will turn to experimental research to address the questions in (15).

In the next section, we provide descriptive summaries of neg-words and *ani* 'even' in Czech and we explain why we see the expression as a candidate for strong NPIs. In Section 5, we discuss the experiment and its results.

4 Descriptive summary of neg-words and *ani* 'even'

We focus on data concerning Czech neg-words and the expression *ani* 'even'. Here, we outline some basic morpho-syntactic properties of the two classes of expressions. We start with neg-words.

4.1 Czech neg-words

In Czech, as in many other Slavic languages, we can find two types of neg-words: heads like *nikdo* 'nobody', as in (16a), and NP-modifiers like *žádný* 'no, not any', (16b).[4] The former is a negative pronoun, morphologically related to the regular interrogative pronoun *kdo* `who' via prefixation. The latter neg-word *žádný* `no, not any' acts like a regular adjective: it agrees with its head noun (*student* `student' in (16b)) in case, number, and gender.

(16)	a.	Nikdo	ne-přišel.
		no-who	NEG-came-3SG.M
		'Nobody came.'	

	b.	Žádný-NOM.SG.M	student-NOM.SG.M	ne-přišel.
		not any	student	NEG-came
		'No student came.'		

We are not aware of any differences concerning the noun and adjective neg-words, at least from the perspective of negative concord and research goals pursued in this article. In our experiments, we mainly used the adjective neg-words. In Table 1, we summarize the classes of Czech neg-words. In case of adjective neg-words, the neg-word is usually followed by a noun, as illustrated in Table 1.

	Interrogative pronoun	**Nominal neg-word**	**Adjectival neg-word**
Person	*kdo*	*nikdo*	*žádný člověk* 'no person'
Thing	*co*	*nic*	*žádná věc* 'not a thing'

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[4]An anonymous reviewer correctly notes that the status of *nikdo* 'nobody' as head or phrase is not totally clear. We agree but solving the syntactical status of *nikdo* is not crucial for our argumentation, we simply want to maintain the difference between NP-modifiers like *žádný* 'no, not any' and neg-words like *nikdo* 'nobody', no matter whether the later are heads or phrases.

Time	*kdy*	*nikdy*	*žádný okamžik* 'at no moment'
Place	*kde*	*nikde*	*žádné místo* 'at no place'
Manner	*jak*	*nijak*	*žádný způsob* 'in no manner'

Table 1 Czech neg-words

Both types of neg-words require clause-mate negation. As is shown in (17-a), the verb lacks the negative marker and the sentence is consequently ungrammatical, in contrast to the minimally different examples in (16). The locality constraints in Czech (as in other Slavic languages) are stringent (see Progovac, 1993). (17a,b) are ungrammatical because the negative marker, potentially licensing the neg-word is absent or appears in a higher clause.

(17)	a.	*Žádný	student	přišel.			
		any	student	came			
		'#Not any student came.'					

	b.	*Petr	ne-ví,	že	žádný	student	přišel.
		Petr	NEG-knows	that	any	student	came
		`Peter doesn't know whether any student came.'					

4.2 *Ani* 'even'

Now we turn to *ani* `even'. First, unlike neg-words *ani* has a double life: it can either be used as a particle which is the usage we focus on in this article. But *ani* has also a conjunction usage which we discuss below the example (18). The licensing properties of Czech neg-words and the expression *ani* `even' overlap. For example, while (18a) is grammatical, just like the example in (16), the absence of negation in (18b) or the non-local negation in (18c) result in ungrammaticality, exactly parallel to the examples with neg-words in (17). The Czech linguistic tradition describes the licensing conditions of *ani* 'even' as identical to those of other neg-words, i.e., *ani* 'even' has to be licensed by clause negation (Havránek and others 1960).

(18)	a.	Ani	jeden	student	ne-přišel.		
		even	one	student	NEG-came		
		'Even one student didn't come.'					

	b.	*Ani	jeden	student	přišel.		
		even	one	student	came		

		'#Even one student came.'					

	c.	*Petr	ne-ví,	jestli	ani	jeden	student	přišel.
		Petr	NEG-knows	whether	even	one	student	came
		'Peter doesn't know whether even one student came.'						

We hypothesize, however, that *ani* 'even' is a candidate for a strong NPI. This hypothesis is based on the lexical meaning of the expression since it is known that `even'-emphasizers are NPIs in other languages (Lahiri 1998).

Let us provide a brief description of the properties of *ani*. We start with the observation that examples in (18) show just one of its possible usages. Another usage of *ani*, in fact much more frequent, is shown in (19a). The example shows that *ani* can function as a disjunctive element. According to Czech National Corpus (CNC, Křen et al., 2015), in 88 % of cases *ani* (out of 147,324 total hits) functions as the disjunctive element, and only in 12 % of cases is *ani* not disjunctive, just as in the examples in (18). We will not describe the disjunctive role of *ani,* but we note that its most important function is marking the narrow scope of the disjunction with respect to negation, whereas regular disjunction can (and often must) scope higher than negation. For example, (19a) can be only understood as reporting that Petr runs and does not sing; or that he sings and does not run; or, marginally, that he does neither. The sentence in (19b), on the other hand, states that Peter neither runs nor sings. This obligatory narrow scope of the disjunction *ani* is directly connected to the cases of *ani* interpreted as 'even', which also has to take narrow scope under negation. It seems that both usages of *ani* are connected, since the usage in both cases can be described as a scope-marking strategy, i.e., *ani* is used to mark a narrow scope with respect to negation, which have been argued to play a crucial role in licensing NPIs (Barker, 2018, and Alexandropoulou, Bylinina, and Nouwen 2020 for an experimental support of the scope-marking approach).

(19)	a.	Petr	ne-běží	nebo	ne-zpívá.
		Petr	NEG-runs	or	NEG-sings
		`Petr doesn't run or doesn't sing.' $\neg run' \vee \neg sing'$ $?? \neg (run' \vee sing')$			

	b.	Petr	ne-běží	ani	ne-zpívá.
		Petr	NEG-runs	nor	NEG-sings
		'Peter neither runs nor sings.' $\neg (run' \vee sing')$			

Focusing now on its non-disjunctive role, we note that *ani*, unlike *žádný,* does not behave like an adjective: it combines freely with NPs, VPs, and PPs as exemplified below in (15-a), (15-b), and (15-c). It behaves as a focus particle which in Slavic languages means it has to be left adjacent to

its associated expression (see Jasinskaja, 2012, for a study on Slavic focus particles and Büring and Hartmann, 2001, for similar observations about focus particles in German).

(15)	a.	Petr	ne-zná	ani	Jednoho	Slováka.
		Petr	NEG-knows	even	one	Slovak
		'Peter doesn't know even one Slovak.'				

	b.	Petr	ani	ne-zavolal.
		Petr	even	NEG-called
		'Peter even didn't call.'		
	c.	Petr	ne-byl	ani	na	nádraží.
		Peter	NEG-was	even	at	train-station
		'Petr even wasn't at the train station.'				

Furthermore, *ani* 'even' is pragmatically restricted: while both (20a) and (20b) are anti-additive, only (20a) is acceptable, while (20b) sounds odd.[5] An explanation of this contrast runs as follows. The prejacent of *ani* 'even' (the interpretation of the sentence in which *ani* appears) cannot be more likely than the interpretation of the same sentence in which alternative expressions are considered. The alternatives in (20) are other numerals following *ani*, starting at the numeral two (for (20a)) and at one (for (20b)). Now, observe that the interpretation of (20-a) entails the interpretation of the same sentence with any of the alternatives: if it is true that Peter does not know a single Slovak, it follows that Peter does not know two Slovaks, but not vice versa. Since (20a) entails any other sentence with an alternative, it cannot be more likely than the same sentence with any of those alternatives. Hence, the likelihood condition is satisfied. In contrast to that, the prejacent in (20-b) is more likely than the interpretation of the same sentence with some of the alternatives (namely, those alternatives that express the number smaller than one thousand). Hence, the likelihood condition is not satisfied. Because of that, (20-a) is acceptable, while (20-b) is not.

(20)	a.	Petr	ne-zná	ani	jednoho	Slováka.
		Petr	NEG-knows	even	one	Slovak
		'Peter doesn't know even one Slovak.'				

| | b. | #Petr | ne-zná | ani | tisíc | Slováků. |
| | | Petr | NEG-knows | even | thousand | Slovaks |

[5] The oddness of of (20b) crucially relies on the scale of alternatives <1,1000> which (presumably) is the context for out of the blue interpretation of sentence like (20b). If a context would be manipulated in such a way to provide a scale of alternatives <1000, 10000>, (20b) would naturally become acceptable, as one of the anonymous reviewers correctly notices.

		'Peter doesn't know even one thousand Slovaks.'

There are various suggestions that this requirement of likelihood is important for licensing NPIs (Heim 1984; Krifka 1995; Chierchia 2013; see also Crnič, 2011, on English *even* and Dočekal and Šafratová, 2019, for the application of Crnič's framework to Czech data and experimental support of the pragmatic treatment of strong NPIs in Czech via the likelihood presupposition of *ani* 'even'). We will not go into details regarding these approaches to NPIs. The crucial observation is that NPIs are sensitive to likelihood and that the manipulation of likelihood can help reveal the strong NPI status for *ani* 'even' in Czech and differentiate the element from neg-words, which, as far as we know, are not sensitive to likelihood properties of the sentences in which they appear.

4.3 Interim recapitulation

It has been argued that while Czech neg-words are licensed in syntax and must obey strict syntactic locality constraints, strong NPIs like *ani* are licensed semantically and pragmatically: they require anti-additive semantic environment but also are pragmatically selective, distinctively preferring its prejacent to be less likely than the respective alternatives. There is a prediction immediately arising from the difference between neg-words and strong NPIs, namely that Czech strong NPIs should show sensitivity to the likelihood conditions and that strong NPIs (in the proper semantic and pragmatic context) can be licensed at a longer distance than neg-words since their licensing conditions are not formulated in terms of clause-boundedness (or other syntactic configurations). We now turn to experiments that target these predictions.

5 Experiments on neg-words and *ani* 'even'

In this section, we summarize the results of two experiments that are directly related to the theoretical questions in (15). They help us decide whether a strict negative concord language offers enough linguistic cues to allow strong NPIs next to the neg-words.

5.1 Experiment 1: Methods and predictions

In this experiment, we tested to what extent *ani* 'even' and *žádný* 'not any' expressions differ. We focus on the environments in which neg-words and strong NPIs can be differentiated.

The experiment was filled by 55 participants, primarily students at the Faculty of Arts, Masaryk University. All the participants were native speakers of Czech. Some received course credit for participation in the study.

We showed participants sentences like (21). There were 25 items, each item appearing in 5 conditions: N(EG)R(AISING), ELLIPSIS, WITHOUT, LIKELIHOOD, IDIOM. Each condition was created for *ani* and *žádný* (marked as POLARITY-ITEM in (21)). Hence, the experiment had a 5 x 2 = 10 conditions. In toto, there were 250 unique stimuli, 125 for *ani* and 125 for *žádný*. The

experiment followed the common Latin-square design: 10 lists were created and each item was presented only in one condition in a list. Each participant received one list.

The experiment was an acceptability judgment task with a 1-5 Likert scale for responses. Along with the items, we also created 25 fillers that had a similar structure as the items. We used 12 fillers which were designed to be complex but acceptable (complex sentences with appropriate negative concord in the embedded clause, a coherent answer to a *wh*-question and so on) and 13 fillers which should be unacceptable for native speakers (presuppositions failures of focus particles, the wrong type of complementizers under propositional attitude verbs and so on). Each participant saw 25 items and 25 fillers. A total of 50 stimuli randomized for each participant. The experiment was run online on IBEX-farm.

(21) a. NR	Nový	asistent	ne-chce,	aby	(POLARITY-ITEM)	student	vyletěl	u	zkoušky
	new	assistant	NEG-wants	that	POLARITY-ITEM	student	fails	by	exam
	'The new assistant doesn't want any/even one student to fail the exam.'								

THIS BOX MUST BE BROKEN UP. MOVE THE ITEMS IN EXESS TO THE NEXT ROW.

b. ELLIPSIS	A: Kdo	vrátil	včera	knížky	do	fakultní	knihovny?
	who	returned	yesterday	books	to	faculty	library
	'Who returned the books to the faculty library yesterday?'						

	B: (POLARITY-ITEM)	student.
	POLARITY-ITEM	Student
	`Any/even one student.'	

c. WITHOUT	Prodal	mu	dvě	šachové	sady	bez	(POLARITY-ITEM)	krále.
	sold	him	two	chess	sets	without	POLARITY-ITEM	King
	`He sold him two chess sets without any/even one king'							

d. LIKE LIH.	Ten	kněz	byl	cílevědomý,	ale	neschopný	takže,	se	nestal	(POLARITY-ITEM)	kardinálem.
	The	priest	was	purposeful	but	incompetent	therefore	SE	NEG-became	POLARITY-ITEM	cardinal
	'The priest was purposeful but incompetent; therefore, he didn't become any/even cardinal.'										

e. IDIOM	Opatrný	Petr	nikdy	nekupoval	(POLARITY-ITEM)		zajíce	v	pytli.

		careful	Petr	never	neg-bought	(POLARITY-ITEM)	rabbit	in	Sack
		`Careful Peter never bought a pig in a poke.'							

The previous theoretical literature agrees on the following differences between neg-words and strong NPIs: (i) strong NPIs can appear in clauses embedded under negated Neg-Raising (NR) predicates (Gajewski, 2007, a.o.) whereas neg-words in strict negative concord languages cannot be separated by a clause boundary from the morphological realization of their licensing negation (Zeijlstra, 2004, a.o.) – see (21-a); (ii) strong NPIs must be in the scope of negation while neg-words can outscope negation, as long as they are in the same clause as negation (similarly to the agreement between subject and the lexical verb); (iii) the neg-words are only syntactically sensitive while strong NPIs require semantic (anti-additivity) and pragmatic (likelihood) licensing conditions (Crnič, 2011, a.o.) – see (21-d). Therefore, if *ani* 'even' is to be a strong NPI (i) *ani* in NR is predicted to be more acceptable than *žádný* (condition NR); (ii) *žádný* should be more acceptable as a fragmentary answer to a question (condition ELLIPSIS); (iii) in the environments manipulated for likelihood in a way that goes against the presupposition of *ani*, *žádný* should be more acceptable (condition LIKELIHOOD). We used the condition WITHOUT as a baseline since it creates an anti-additive environment where both *ani* and *žádný* should not differ and since it was observed before (Błaszczak 2001) that *without* type of preposition licenses neg-words in Slavic languages. We also tested whether *ani/žádný* can appear in idiomatic constructions (IDIOM), but that condition is not relevant here.

5.2 Experiment 1: Results

One participant failed to distinguish good and bad fillers in his/her acceptability judgements and was removed from the analysis. We analyzed the experimental data in a mixed-effects linear model with subject and item intercept+slope random effects using the LME4 package (Bates et al. 2015) in R (R Core Team 2021). Figure 1 shows the mean acceptability of *ani* (in red) versus *žádný* (in blue) in all four relevant conditions.

As apparent from Figure 1, both *ani* and *žádný* are in the four conditions rated in the range around the middle field of the 1-5 scale. One of the two anonymous reviewers correctly noticed this and raised a question about the baseline acceptability of neg-words and NPIs in Czech. We didn't control for this in Experiment 1 but there's a baseline condition in Experiment 2 discussed in detail below. Namely, subjects rated sentences like *Profesor ne-vyhodil ani jednoho/žádného studenta* `Anyone/even one student wasn't failed by the professor.' (the sentences were conceived as answers to wh-questions), see (12) for more details. In that condition both neg-words and NPIs occur in the direct scope of local negation, therefore their acceptability can be taken reasonably as baseline for Czech neg-words and NPIs. And indeed the acceptability of both neg-words ($\mu = 4.4$, *SD: 0.95, SE: 0.03*) and NPIs ($\mu = 4.6$, *SD: 0.88, SE: 0.03*) was much higher than in the manipulated conditions both in Experiment 1 and Experiment 2. The default acceptance of neg-words and NPIs is therefore much higher than in the manipulated conditions which is quite surprising but see Alexandropoulou, Bylinina, and Nouwen (2020) for a similar observation of decreased NPIs acceptability in the scope of a prototypical downward entailing quantifier *at most*.

For the model, we label the four conditions NR, ELLIPSIS, LIKELIHOOD, and WITHOUT as the ENVIRONMENT and ANI VS ŽÁDNÝ as POLARITY-ITEM. We set WITHOUT as the reference level of the factor ENVIRONMENT, and for the factor POLARITY-ITEM, we set ŽÁDNÝ as the reference level. The dependent variable was a by-subject z-transformed response. The independent variables were ENVIRONMENT and POLARITY-ITEM and their interaction.

As is apparent from Figure 1, *ani* and *žádný* were indistinguishable in terms of acceptability in the baseline condition WITHOUT. Comparing NR to the baseline, we found a negative main effect of NR ($t = -4.1, p < .001$). In NR, participants judged *ani* as more acceptable than *žádný* (a positive interaction of *ani × NR, t = 2.4, p < .05*). This was the only positive interaction of *ani* with other conditions in ENVIRONMENT which confirms its NPI status since in each condition except NR (ELLIPSIS, LIKELIHOOD and IDIOM) the neg-words were expected to fare better than NPIs (see also Footnote on page 17 for a full table of model coefficients). This finding is in line with the predictions discussed in the last section: the negation on the embedding verb creates, via the Neg-Raising interpretation, the anti-additive environment in the embedded clause, which licenses strong NPIs (*ani*). In comparison to strong NPIs, neg-words cannot be syntactically licensed across the clause boundary.
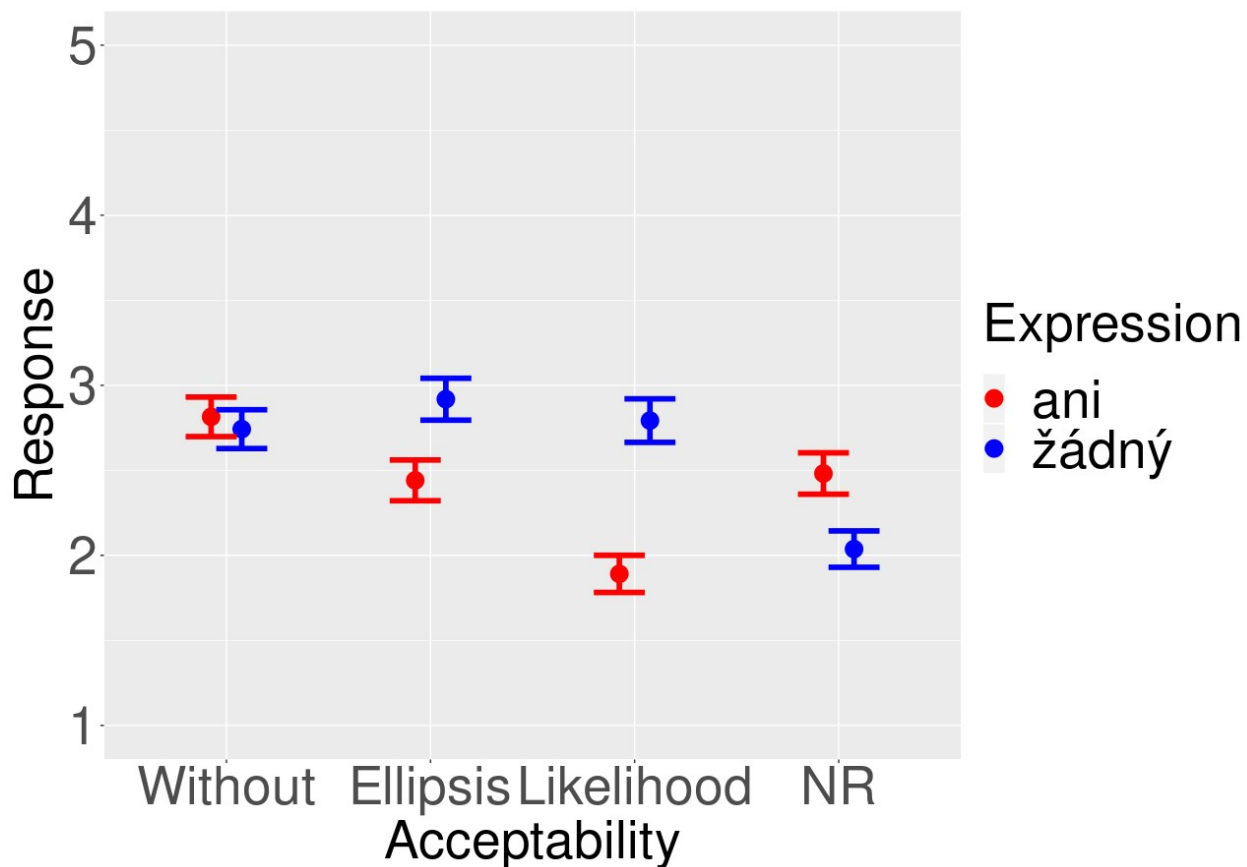
Figure 1: Experiment 1, Responses (mean and SE)

We investigate the role of the ellipsis next. Presence of ELLIPSIS in the sentence has a significant negative effect on the acceptability of *ani* (a negative interaction of *ani × ellipsis*, *t = −2.6, p < .05,*) which again supports the classification of *ani* as a strong NPI since it is degraded when appearing outside the scope of negation (in fragmentary answers), unlike the more acceptable neg-word *žádný*.[6]

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[6] One anonymous reviewer asked for full table of coefficients for main effects and interactions. They can be found in this footnote. In the main text we report (for readability reasons) just subset of them and all t values in the main text are rounded to tenths: the sixth row (Testednr) is shortened in the main text as "main effect of NR (*t = −4.1, p < .001*)", e.g.

```
Fixed effects:
                   Estimate Std. Error       df t value Pr(>|t|)
(Intercept)         0.09611    0.09876  58.19165   0.973 0.334482
ExpressionA         0.01424    0.09387 892.33169   0.152 0.879450
Testedel            0.09652    0.13404  86.40327   0.720 0.473394
Testedidi           0.69712    0.18346  45.54297   3.800 0.000427 ***
Testedlik          -0.02110    0.17723  51.97793  -0.119 0.905678
Testednr           -0.54000    0.13340  53.65086  -4.048 0.000167 ***
ExpressionA:Testedel -0.34643  0.13246 1022.57755 -2.615 0.009046 **
```

17

Furthermore, there is a significantly strong effect in LIKELIHOOD: subjects clearly judged *žádný* as more acceptable than *ani*. All the sentences in the LIKELIHOOD condition were constructed in such a way that *ani/žádný* modified expressions on high end-points of a scale which goes against the likelihood presupposition of *ani* in a similar way we demonstrated with (20-b): the likelihood presupposition requires the low end-point expression since the bottom of the scale (in the negated) environment entails all the other alternatives and thus becomes the least likely.

5.3 Experiment 1: Discussion

We studied the acceptability of *ani* 'even' and *žádný* 'any' in the environments in which they are predicted to be equally acceptable (WITHOUT) and in contexts in which their acceptability should differ if *ani* 'even' is a strong NPI (NR, ELLIPSIS, LIKELIHOOD). The experiment confirmed our expectations: *ani* is more acceptable under the negated Neg-Raising verbs (NR) than *žádný* compared to the baseline condition (see also Dočekal and Dotlačil 2016 for more evidence that neg-raising predicates affect the acceptability of strong NPIs compared to other predicates). *žádný* is judged as a better fragmentary answer than *ani* (ELLIPSIS), and in the contexts preferring top of the scale interpretation, participants judged *žádný* as more acceptable than *ani*. These experimental results support the classification of *ani* as a strong NPI licensed by semantic and pragmatic rules. Our experimental data also bring clear evidence for the treatment of *žádný* as a neg-word, regulated by purely syntactic rules. Taken together, we claim that strong NPIs and neg-words coexist in Czech as semantically and syntactically negative dependent expressions, respectively. Now we can answer the first research question from (15): strict negative concord languages allow strong NPIs alongside neg-words.

One might wonder how speakers learn to classify *ani* 'even' as a strong NPI given that the evidence for this classification is very limited: the positive evidence comes mainly from the Neg-Raising predicates. We queried into 120 million CNC (Křen et al. 2015) for the most prototypical Neg-Raiser *chtít* `want' with *ani* embedded in a positive sentence. The query yielded just one example repeated below as (18). This, we think, nicely illustrates the relative subtlety of the positive evidence for the strong NPI status of *ani*. The other positive evidence (the higher acceptability for *žádný*), which comes from fragmentary answers and the ability of *žádný* to modify high-end scalar points, is most probably even more fragile than the evidence from Neg-Raising.[7]

(22)	Ne-chtějí,	abychom	ani	jeden	seděli.
	NEG-wants	that	even	one	sits

```
ExpressionA:Testedidi    -0.88504      0.13376 1056.87787   -6.617 5.83e-11 ***
ExpressionA:Testedlik    -0.63430      0.13406 1053.36843   -4.731 2.53e-06 ***
ExpressionA:Testednr      0.31935      0.13271 1007.28837    2.406 0.016289 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

---

[7] One anonymous reviewer suggest that the sentence fragments can be a stronger source of the positive evidence than we claim. We are happy to agree with this idea but don't know how to test it.

	'They don't want even one of us to sit.'

The limited nature of the evidence that can differentiate between Czech neg-words and strong NPIs leads us to the second research question posed in (15) and repeated in (23). We want to see whether the decision to treat *ani* as a strong NPI is observed by all speakers or whether we can find a variable behavior.

(23)   Do speakers agree on which elements belong to neg-words and which elements belong to the group of strong NPIs?

Using the experimental results, we will see that some speakers treat *ani* as a strong NPI, but there are also speakers for whom *ani* plays role of a neg-word. There are no two clear-cut groups, rather, speakers could be ordered on a scale with respect to how strongly they treat *ani* as a strong NPI (or a neg-word).

We can discern this pattern in the results of Experiment 1 and we will further strengthen it in Experiment 2.

  The point of departure is the following. If some person grammaticalized *ani* as a neg-word, we expect that person to show lower acceptance of *ani* under neg-raising predicates compared to people who grammaticalize *ani* as a strong NPI. Crucially, the same person that tends to reject *ani* under neg-raising predicates should accept *ani* in the Likelihood condition more than people treating *ani* as a strong NPI.

  We test this by collecting mean z-transformed responses per participant to conditions NR and LIKELIHOOD with *ani* as the POLARITY-ITEM condition. We then consider a linear model to study whether the higher acceptance of NR correlates with the lower acceptance of LIKELIHOOD. Indeed, this is found (*t=-3.0, p<0.005*). Note that the correlation is negative, showing that participants that tended to accept one condition tended to reject the other condition. This means that the correlation could not be explained away as showing just a general attitude of participants towards the experiment, e.g., it could not come about because of some participants' tendency to generally accept or generally reject test items.

  The negative correlation strongly suggests that per-participant differences to those two conditions are not just noise, but reveal an underlying pattern. Our interpretation of the significant finding is that participants differ in whether they treat *ani* as more or less likely to be a strong NPI or more or less likely to be a neg-word, and these underlying assumptions affect their responses to the two conditions. This, in turn, suggests, that Czech native speakers differ from each other in their treatment of *ani*. Some consider the item to be a strong NPI (in most cases) and some consider it to be a neg-word (again in the majority of cases).

5.4 Experiment 2: Methods and predictions

Experiment 1 provided evidence that some speakers treat *ani* as more of a strong NPI than others, who come closer to treating it as a neg-word. We now strengthen this evidence by briefly discussing results of another experiment. This second experiment contained more elaborated contexts, which possibly helped speakers to construct alternatives more easily. The details of Experiment 2 can be found in (Dočekal and Dotlačil 2017) and (Dočekal 2020); here we will

only recapitulate the essential design properties of Experiment 2: as Experiment 1, it was (in part) an acceptability judgment task, in which participants had to use a 1-5 Likert scale. In this experiment, we also included the LIKELIHOOD condition, this time in the form of truth value judgment task in which subjects rated (on the 1-5 Likert scale) appropriateness of a sentence against a background context. We have chosen this mixed experimental design since the experiment now explicitly states what scales for judging likelihood are important, hence the task of judging likelihood should be easier. Experiment 2 design was 4 x 2: the conditions were BASELINE, NR, ELLIPSIS, LIKELIHOOD crossed with the variation of polarity items – *ani* vs. *žádný*. In (24) we present the first three conditions of Experiment 2 and in (21) there is an example of the LIKELIHOOD condition.

(24)	a. BASE LINE	A: Koho	vyhodil	professor	Palný	včera	ze	zkoušky?
		whom	failed	professor	Palny	yesterday	from	exam
		`Who was failed by professor Palny during the yesterday exam?'						

		B: Profesor	ne-vyhodil	(POLARITY-ITEM)	studenta.			
		professor	NEG-failed	POLARITY-ITEM	Student			
		`Anyone/even one student wasn't failed by the professor.'						

	b. ELLIP SIS	A: Koho	vyhodil	professor	Palný	včera	ze	zkoušky?
		whom	failed	professor	Palny	yesterday	from	exam
		`Who was failed by professor Palny during yesterday's exam?'						

		B: (POLARITY-ITEM)	studenta.					
		POLARITY-ITEM	student					
		'Not any /Not even one student.'						

	c. NR	A: Co	je	nového	na	katedrových	zkouškách?	
		what	is	new	at	department	exams	
		`What happened new during the department exams?'						

		B: Profesor	Palný	nechce,	abychom	vyhodili	(POLARITY-ITEM)	studenta
		professor	Palny	neg-wants	COMP	fail	POLARITY-ITEM	student
		`Professor Palny doesn't want any/even one student to fail.'						

This box needs to be broken into two sets of rows.

(25)   LIKELIHOOD

a. Context:
Profesor Novák zkoušel včera celkem lehký předmět, do kterého chodí bakaláři, magistři i doktorandi. Doktorandi zkoušku složí vždycky, magistři většinou ano, bakaláři spíš ne.
`Yesterday, Professor Novák ran exams of a fairly easy lecture, which is attended by bachelor, masters and doctoral students. Doctoral students always pass the exam, masters usually do, bachelors rather don't.'

b. Target sentence:							
Včerejší	zkoušku	u	prof.	Nováka	Nesložili	(POLARITY-ITEM)	bakaláři.
yesterday	exam	by	professor	Novak	neg-passed	POLARITY-ITEM	bachelors
`Any/even bachelors didn't pass professor Novak's exam yesterday.'							

    40 Czech native speakers (mostly students at Faculty of Arts MUNI, Brno) participated in Experiment 2 and part of them received a credit for their participation. All participants successfully passed the fillers which were constructed analogically to the items. We used all the answers in the subsequent analysis. Just as in the case of Experiment 1, the data were analyzed using mixed-effects models, with condition X polarity-item as fixed effects and items and subjects as random effects. We leave aside further discussion of the model and the findings that are not relevant here. See Dočekal 2020 for details.

## 5.5 Experiment 2: Results and discussion

Our focus is on correlations in subjects' responses that we also described for Experiment 1. In particular, we want to see whether there is a correlation between *ani* acceptability under Neg-Raising (the condition NR) predicates and the acceptability of *ani* in the environments with the wrong likelihood profile for strong NPIs (the condition LIKELIHOOD) in Experiment 2. This correlation, studied in the same way as in Experiment 1, is again negative and highly significant ($t=-3.2$, $p=.003$). The negative correlation between LIKELIHOOD and NR with respect to *ani* is visualized in Figure 2. The acceptability rating was z-transformed, so unlike the original Likert scale, 1 to 5, here the scale is close to 0. Each individual point represents the mean value of each z-transformed subject answer. The x-axis represents the acceptability in LIKELIHOOD, and the y-axis represents responses to NR. The blue line is a regression line minimizing residuals. We can clearly see that two responses are negatively correlated: as subjects tend to accept *ani* in the LIKELIHOOD condition, they tend to reject *ani* in the NR condition. Note also that there are no speakers who would allow presupposition (likelihood) failure of *ani* and accepting *ani* under

Neg-Rasing predicates: such speakers would be visualized as points in the top right corner of the graph, but that part of the graph is empty.

Next, we also considered a model in which mean response (per participant) in ELLIPSIS with *ani* was a predictor of NR-responses with *ani*. We again see a negative correlation that is significant ($t = -2.1, p = .04$). The polarity of the effect is negative, so it agrees with the correlation described in the previous paragraphs. For those speakers who have *ani* grammaticalized as a neg-word, it behaves as a regular neg-word: *ani* can be used as a fragmentary answer but then it is not licensed across the clause boundary (NR).

Finally, we ran the same comparisons between the conditions ELLIPSIS and NR and the conditions LIKELIHOOD and NR for the expression *žádný*. We did not expect that the per-participant responses should reveal any negative correlations, since unlike *ani* 'even', there is no reason, as far as we can see, to treat *žádný* as a strong NPI. Indeed, no negative correlation was revealed (all models: *p>.1*).

Experiment 2 confirms the results of Experiment 1. Our interpretation of the negative correlations is that Czech speakers either classify *ani* as a strong NPI and then its licensing requirements are derived in semantics/pragmatics. In that case, *ani* is rejected in ELLIPSIS and LIKELIHOOD but it is more acceptable in the condition NR. Alternatively, speakers use *ani* as a neg-word, and then its usage is restricted by syntactic rules. In that case, *ani* is rejected in NR but acceptable in ELLIPSIS and LIKELIHOOD. It should be stressed, however, that it would be wrong to conclude that speakers are simply split into two clear-cut groups depending on their analysis of *ani*. There is no evidence in the experiments that two separate, non-overlapping groups can be distinguished in the data. Speakers differ from each other but more subtly than just falling into one or the other clearly demarcated idiolects. Rather, *ani* 'even' shows an inter-speaker variation with respect to whether it belongs more strongly or less strongly into the category of strong NPIs (or, vice versa, to neg-words).
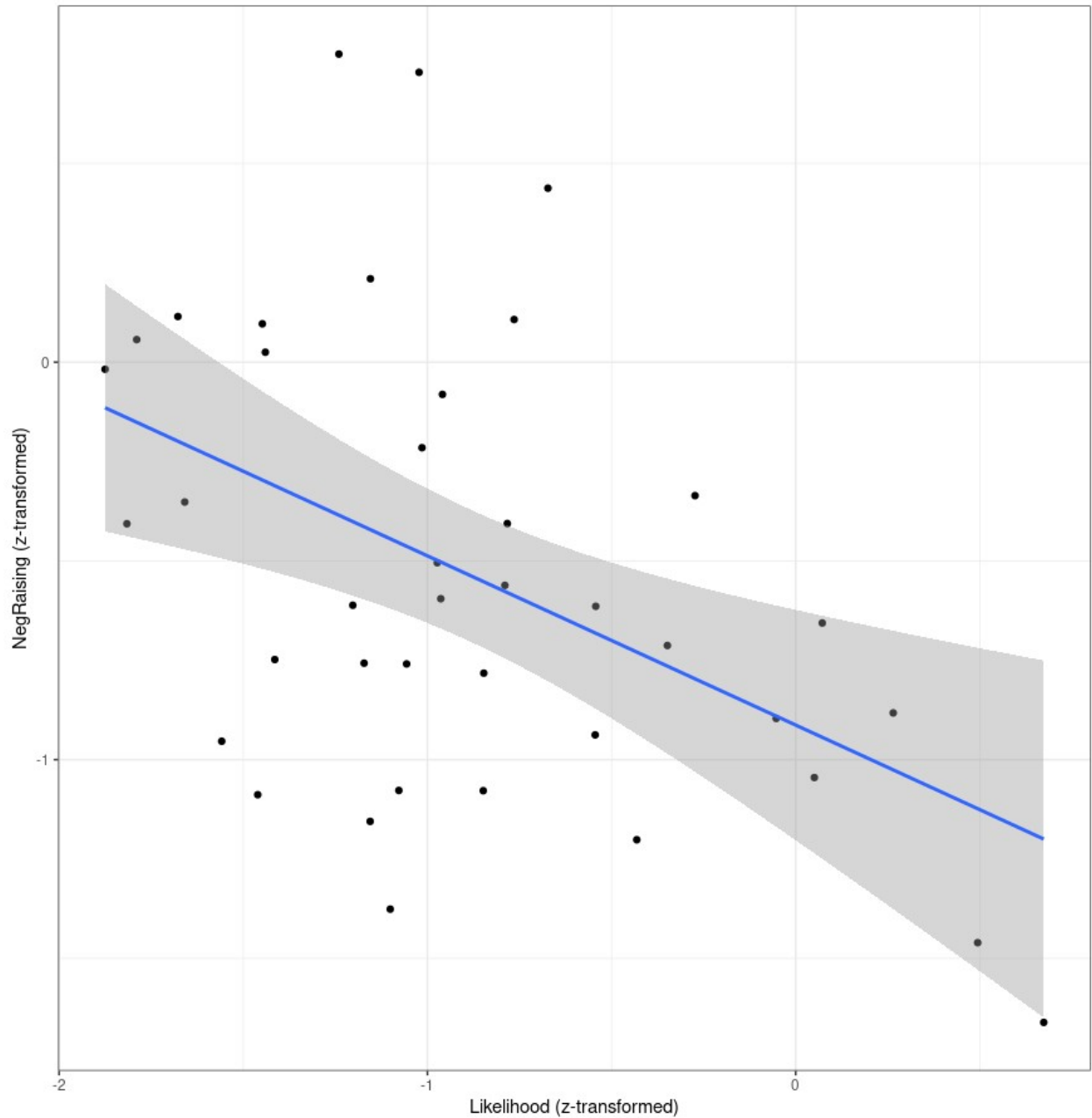
Figure 2 The correlation between ani acceptability under NegRasisers and in the likelihood manipulated environments

6 Conclusion

We have considered the question whether it is possible to find strong NPIs in a language with strict negative concord and neg-words. The question is a non-trivial one since strong NPIs are

licensed in very similar contexts that license neg-words. Thus, one can imagine that the two categories collapse. Yet, we did find evidence in Czech that the lexical item *ani* 'even' shows properties of a strong NPI, at least for some speakers.

We have also seen that some variability of the analysis of *ani* 'even' exists. Speakers seem to be internally consistent but there is inter-speaker variation of whether to analyze the expression as a strong NPI or as a neg-word. This is probably expected, given that the evidence to decide between the strong NPI analysis and the neg-words analysis is very scarce. Interestingly, the expression *žádný* 'any' does not show such inter-speaker variation and acts like an ordinary syntactically licensed neg-word. This suggests that the lexical meaning of an expression plays an important role in understanding how negative contexts license the expression.

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