The Proto-Indo-European Negative Polarity Item *$k^{w}ene$

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Negative Polarity Items

- NPIs are items that are characteristically restricted to 'negative', i.e. downward-entailing (DE) environments (Ladusaw 1979, *i.a.*).

Example

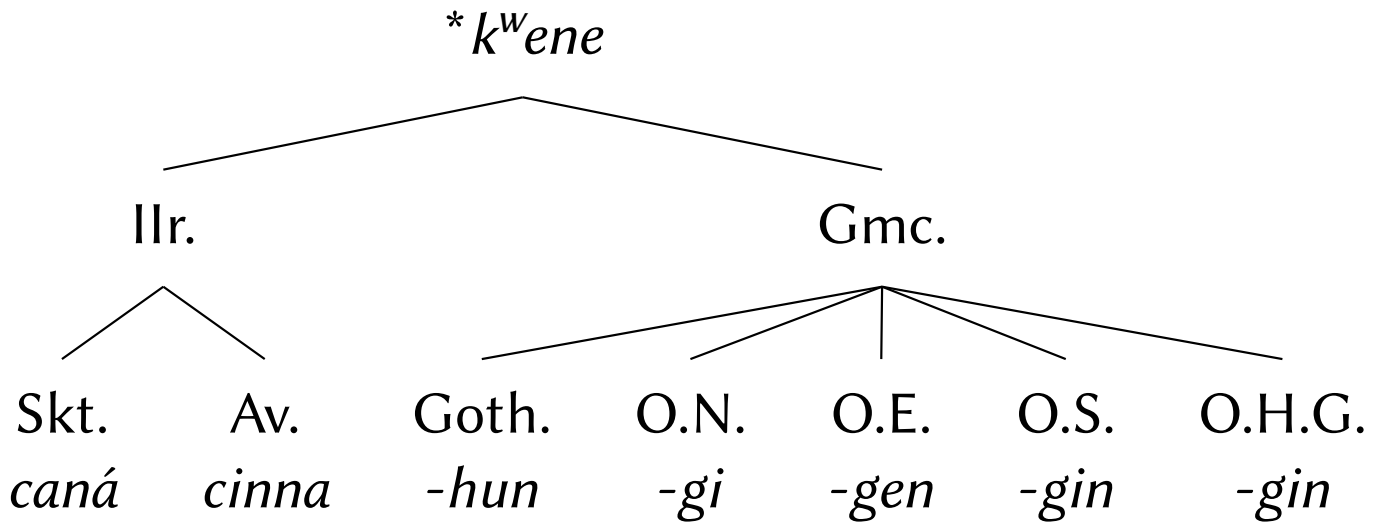
(1) Downward-entailing contexts license subset inferences:
"John doesn't eat meat." → "John doesn't eat pork."

(2) Regular upward-entailing contexts license superset inferences:
"John is eating spinach." → "John is eating vegetables."

- Clear correlations between polarity-sensitivity and meaning remain difficult to explain (cf. Hoeksema 2012).

NPIs in Indo-European

- Early IE languages exhibit a wide variety of NPIs/NPI-forming processes.
- Early Germanic and Ved. Sanskrit evidence reflects an *even*-NPI in $*k^{w}ene$.



Agreement account of polarity sensitivity

- Many accounts of NPIs treat their distribution as fundamentally syntactically-mediated, usually by agreement (e.g. Jäger 2010).
- The relevant syntactic features are taken to be intrinsic to the semantics of licensing heads but arbitrary on the licensees (van der Wouden 1997: 69–72).

Example

(3) Did anyone bring snacks?
[iDE] ~~[uDE]~~

(4) *Anyone brought snacks.
[uDE]

Motivation for a semantic account

- There is robust evidence for a relationship between semantic meaning and syntactic distribution in polarity phenomena, both for licensors and licensees.
- Therefore, an account in which the syntactic distribution is fully determined by the semantic meaning is stronger than one in which this relationship is mediated by additional information (i.e. morphosyntactic features) in the lexicon.

Phonology

- The attested early Gmc. reflexes of this item are:
  - Gothic: *-hun*
  - Old English: *-gen*
  - Old High German: *-gin*
  - Old Saxon: *-gin*
  - Old Norse: *-gi*
- Inflected forms of O.N. *en-gi*, e.g. *e/ön-gvan* and *e/ön-gva* point to the labiovelar.
- We take the view that Gothic *-hun* is voiceless due to de-Vernerisation by analogy to *-uh*, the outcome of **-k^{w}e*.
- We reconstruct PGmc. **-ɣ^{w}en*.

Gothic *-hun*

- Gothic words in *-hun*:
  - *ain°-hun*
  - *hvanhun*
  - *hvashun*
  - *hveilohun*
  - *mann°-hun*
  - *þishun*
- All appear exclusively under negation except for *ainshun*, which also appears in questions, and *þishun*, which is used only to translate Greek *μάλιστα* ('especially').
- All *-hun* words except *þishun* are NPIs.

Old Saxon *-gin*

- O.S. attests 14 instances of *-gin* in *hwargin*, *hwergin*, or *hwerigin*:
- 12 times under negation, 1 in a superlative, 1 in a free choice context.

Example (*Heliand* 2222–2223)

(5) *so uuarth that all gisamnod seokora manno,*
haltaro endi habaro, so huat so that huergin uuas,
(Sievers 1878: 156)

"There were gathered about many sick men together,
The halt and the lame of hand — whosoever was here,"
(Scott 1966: 76)

Old High German *wergin*

- O.H.G. *wergin* is attested 12 times in the *Evangelienbuch*:
- 10 under negation, 1 in the protasis of a conditional, and 1 in a non-DE environment — a free-choice item in a generic context (4.31.15)

Old Norse *-gi*

- O.N. *-gi* productively forms negative indefinites. (Sturtevant 1938)

Old English *-gen*

- Hypothesis: O.E. had a reflex of $*\gamma^{w}en$, *-gen(e)*, which formed NPIs.

-gen in Beowulf

Example (*Beo.* 2589f.)

(6) *sceolde [ofer] willan wīċ eardian*
elles hwerġen, swā sceal æġhwylċ mon
(Fulk, Bjork, and Niles 2008)
"for against his will he must win a home
elsewhere far, as must all men," (Gummere 1909)

- The only instance of *-gen* in Beowulf is not in a DE context.
- Free choice? But, *elles hwerġen* refers to the afterlife...
- We'll return to this.

Novel attestations of *-gen* in O.E. gospels

- We found six attestations in (transcriptions of) Old English gospels:
  - 5 in MS *Hatton* 38
  - 1 in MS *Royal* 1 A. xiv
- *Hatton* is more recent, having been copied out using at least *Royal*, which was copied at least using an even earlier manuscript, *Bodley* 441.
- NB: We have yet to confirm the transcripts against the originals or facsimiles thereof; nor have we obtained access to any text of *Bodley*.

Negative concord in O.E.

- The O.E. gospel translations typically use negative indefinites in DE contexts.

Example (John 8:33)

(7) *ne þeowedon we nanen menn næfre.* (Skeat 1878)
NEG serve.3PL.PAST we no men never

"We have never been slaves to any man."

any-NPIs in O.E.: Morphology

- Six examples of *any*-NPIs in O.E. gospel mss.:

MS	Lk. 8:43	Jn. 7:51	Jn. 18:31	Mk. 5:37	Mk. 11:25	Lk. 19:8
Corpus	ænegum	ænine	ænine	ænigne	ænigne	ænigne
Royal	anegum	anine	ænigne	ænigne	anigene	ænigne
Hatton	anygen	anigene	anigene	anigene	anigene	anigne

- Where *Corpus Christi College* MS 140 and *Royal* generally use declined forms of *ænig-*, we find five attestations with unexpected *-gen(e)* in *Hatton* and one in *Royal*.
- We take Mark 11:25 as evidence that the *Royal* scribe knew a word *anigene*.
- In Luke 19:8 the *Hatton* scribe uses *anigne* — maybe common/neuter distinction?

O.E. *anigene*

Example (Mark 5:37)

(8) *Ænd he ne let hym anigene felgian. buton petrum & Iacobum & Iohannem Iacobes broðer.* (Skeat 1871)
"And he admitted not any man to follow him, but Peter, and James, and John the brother of James." (Douay-Rheims)

Example (John 7:51)

(9) *Cwæst þu. demð ure éæ. anigene man bute hyne man ær hyre ; & wite hwæt he do.* (Skeat 1878)
"Doth our law judge any man, unless it first hear him, and know what he doth?" (Douay-Rheims)

O.E. *anig-*: Syntax and Semantics

- With and without *-gen*, *anig-* is limited to NPI-licensing environments:
  - Negation: Luke 8:43, Mark 5:37, John 18:31
  - Conditional (pro.): Mark 11:25, Luke 19:8
  - Y/N Question: John 7:51
- Hypothesis: at least some speakers of Old English had a lexical item [*an*+*ig*]+*gen*
- Two possible explanations:
  - NPI-forming *-gen* is strengthening the existing NPI *anig*, or
  - *even*-NPI *-gen* was added to non-NPI indefinite *an(-ig)* to form *any*-NPI *anigen(e)*

Vedic Sanskrit *caná*

- NPI counterpart to *cid*, usually translated 'even' or 'any'.
- *caná* occurs high in the structure of nominal and quantificational projections and associates with some Focus feature.
- This association can be overt (*caná*-phrase raises to clausal Focus) or covert (*caná*-phrase stays low); with the latter being characteristic of indefinite *caná*-phrases.

Example (RV 1.81.5c)

(10) *ná tvā́vāṁ indra kás caná* | (Gippert 2000)

ná	tvā́vān	indra	[kás	caná]
NEG	like.you	Indra.VOC	WH.M.SG.NOM	even

"There is not anyone like you, Indra,"

Vedic Sanskrit *caná*

- Where *caná* occurs in clausal Focus position, the Neg particle *ná* is deleted under identity (Hale 2015; cf. Biberauer 2007).

Example (RV 1.166.12c)

(11) *índraś caná tyájasā ví hruṇāti táj* | (Gippert 2000)

índras	caná	~~ná~~	tyájasā	ví hruṇāti	tát
Indra	even	not	desertion.SG.INS	harms	it

"not even Indra makes it go awry through dereliction"
(Brereton and Jamison 2014)

- Neg is interpreted high as in Hindi (Lahiri 1998).

Vedic Sanskrit *caná*

- Licensed not only under propositional negation but also other DE contexts, like *nákir* 'no one' (RV 1.155.5, below) and certain modal contexts which are not clearly DE, like an argument of an optative verb (RV 6.26.7).

Example (RV 1.155.5cd)

(12) *... nákir ā́ dadharṣati | váyaś caná patáyantaḥ patatríṇaḥ ||*
(Gippert 2000)

nákis ā́ dadharṣati [váyas caná patáyantas patatríṇas]
no.one dare.AOR.3SG birds even flying winged

"...no one will dare, not even the winged birds in their flight."
(Brereton and Jamison 2014)

Morphosyntax

- Based on Crnič (2011)'s analysis of Slovenian *magari*, *i.a.*
- **k*^{w}*ene* spells out a pair of heads called EVEN and AT LEAST.
- EVEN obligatorily checks Foc, usually overtly, sometimes pied-piping its complement.

Semantics

- EVEN and AT LEAST each take as arguments a proposition and a focus-marked element in that proposition, and output a proposition.
- If the entailments or presuppositions of the resulting propositions don't hold true, we expect the sentence to be rejected as false or incoherent.

Semantics: EVEN

Definition (EVEN)

(13) $\lambda C.\lambda p : \exists q \in C[p \lhd_c q].\lambda w.p(w) = 1$

Given a set of relevant alternatives C to proposition p, EVEN:

1. presupposes that there is a proposition q in C which is more likely than p, and
2. asserts p.

(Crnič 2011: 109)

Semantics: AT LEAST

Definition (AT LEAST)

(14) $\lambda C.\lambda p : \forall q \in C[p \neq q \rightarrow q \lhd_c p].\lambda w.\exists q \in C[q \trianglerighteq_c p \wedge q(w) = 1]$

Given a set of relevant alternatives C to proposition p, AT LEAST:

1. presupposes that p is more likely than any other proposition in C, and
2. asserts that there is a proposition in C that is true and no more likely than p. (Crnič 2011: 109)

Deriving *$k^{w}ene$ under negation

Example (RV 1.55.1b)

(15) *índraṃ ná mahnā́ pr̥thiví caná práti* | (Gippert 2000)
"Not even the earth is the counterpart to Indra in greatness."
(Brereton and Jamison 2014)

(16) EVEN [NOT [AT LEAST [greatness(*earth*) = greatness(Indra)]]]

- The basic proposition is approximately "earth is equal to Indra in greatness".
- We derive the intended meaning from this proposition with the NOT operator spelled out by *ná*, and the EVEN and AT LEAST operators spelled out by *caná*.

Deriving *$k^{w}ene$ under negation, cont'd

Example (RV 1.55.1b)

(17) AT LEAST [greatness(*earth*) = greatness(Indra)]
Presupposition: greatness(earth) > greatness({man, house, village, ...}) ✓
Assertion: greatness(earth) ≥ greatness(Indra)

- Applying AT LEAST to the proposition "earth is equal to Indra in greatness" with *earth* focused yields the presupposition that earth is greater than any item in the relevant set (here, items of observable size).
- It also weakens the basic proposition, allowing for the case that earth is larger than Indra.

Deriving *$k^{w}ene$ under negation, cont'd

Example (RV 1.55.1b)

(18) NOT [AT LEAST [greatness(*earth*) = greatness(Indra)]]
Assertion: greatness(earth) $<$ greatness(Indra)

- Negating the proposition "earth is greater than or equal to Indra in greatness" yields "earth is lesser than Indra in greatness".

Deriving *$k^{w}ene$ under negation, cont'd

Example (RV 1.55.1b)

(19) EVEN [NOT [AT LEAST [greatness(*earth*) = greatness(Indra)]]]

Presupposition: $\exists x \in \{\text{man, house, village, ...}\}$:

greatness(earth) $>$ greatness(x) ✓

Assertion: greatness(earth) $<$ greatness(Indra) ✓

- Finally, adding EVEN yields the presupposition that there is at least one relevant alternative smaller than earth in the set of alternatives.
- The final assertion is consistent with the expected reading, namely that Indra is greater than the earth.

Expected distribution

- The expected distribution of this item includes:
  - downward-entailing (DE) environments, including negation (Crnič 2011: 113–114)
  - Y/N questions, yielding negative bias (Crnič 2011: 114–116; Lahiri 1998: 98–103; Guerzoni 2003, 2004)
  - modals, yielding free choice interpretation (Crnič 2011: 116–126; Lahiri 1998: 91–98)
- It excludes:
  - upward-entailing (UE) environments, including positive episodic sentences (Crnič 2011: 110–113)

Deriving *any*-NPI indefinites

- *Even*-NPIs definitionally pick out *weak* (i.e. likely) predicates.
- Existential indefinites like O.E. *an(-ig)* are maximally weak predicates.
- *Wh*-items don't have existential force, but our semantics for AT LEAST does, so composing a *wh*-item with an *even*-NPI yields an *any*-NPI (Erlewine and Kotek 2016).

Conclusions

- We showed that Vedic Sanskrit, Gothic, Old High German, Old Saxon, and thanks to newly-observed data, Old English, all attest an *even*-NPI reflecting PIE *$k^{w}ene$.
- A large majority of the attested examples in these branches are directly accounted for by our proposed semantic analysis.
- Many if not all of the remainder can be accounted for under some alternative reading.

Next Steps: *Beowulf* 138

- We still need to more closely examine certain potentially reconcilable passages.
- *Beowulf* 138 attests *elles hwær*, without *-gen*.
- In 138, *elles hwær* occurs in a positive episodic context and refers to a set of specific places.

Example (*Beo.* 138f.)

(20) *Þā wæs ēaðfynde þē him elles hwær*
ġerūmlicor ræste [sōhte], (Fulk, Bjork, and Niles 2008)
"They were easy to find who elsewhere sought
in room remote their rest at night," (Gummere 1909)

Next Steps: *Beowulf* 2590

- By comparison, *elles hwergen* in 2590 occurs under a universal modal, where we predict *-gen* to be licensed but to have a free-choice or non-specific reading.
- Maybe the focused element is not just *elles hwær*, but the whole predicate "to make one's home elsewhere ⟶ to die", in which case the overall proposition ("every man dies") is certainly weak.

Example (*Beo.* 2589f.)

(21) "he was obliged against his will to make his home elsewhere, as, at least, must every man..."

Next Steps: *Ṛgveda* 1.55.5cd

Example (RV 1.55.5cd)

(22) *ádhā caná śrád dadhati tvíṣīmata |*
índrāya vájraṃ nighánighnate vadhám || (Gippert 2000)
"Then indeed they place their trust in turbulent Indra, as he smashes down his mace, his deadly weapon, again and again—" (Brereton and Jamison 2014)
"Dann erst glauben sie an den wutentbrannten Indra..." (Geldner 1951)
"Do they not even then place their trust in turbulent Indra...?" (Hale 2015: 198)

Next Steps: *Ṛgveda* 1.55.5cd

- Non-monotonic environments like *exactly N* are expected to license *even*-NPIs in weak propositions (Crnič 2011: 144–145)

Example (RV 1.55.5cd)

(22) "Then, at least, they place their trust in turbulent Indra, [precisely] as/when he smashes his mace..."

Thank you!

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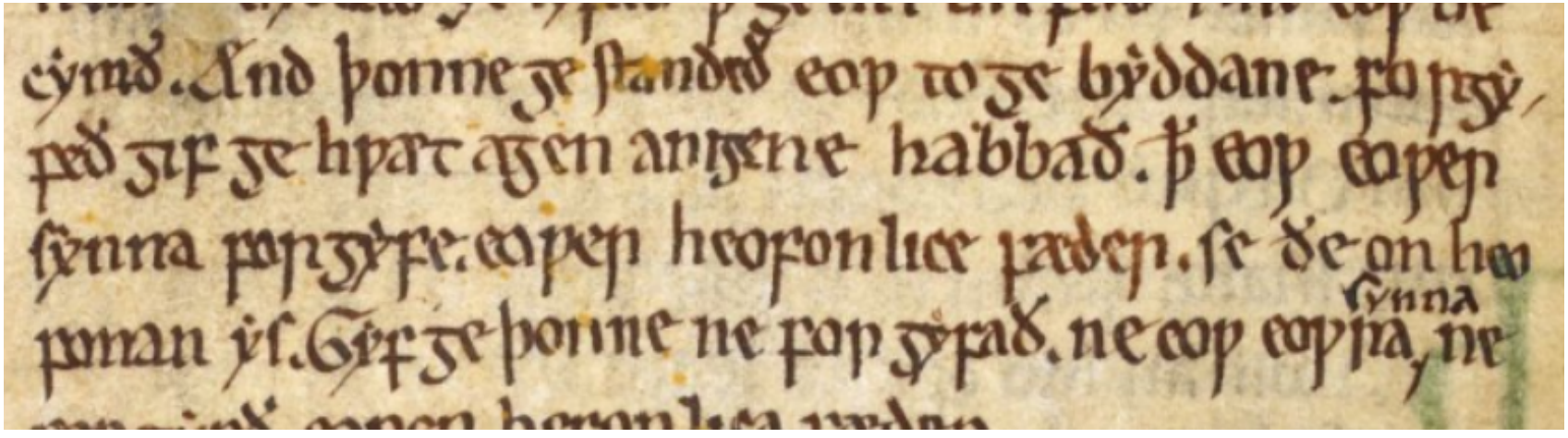
Deriving *$k^{w}ene$ under conditionals I



Example (Mark 11:25)

(23) forgyfeð gif ge hwæt agen *anigene* habbað.
(MS *Royal* 1 A. xiv)
"Forgive, if you have anything against *anyone*."

(24) EVEN if [AT LEAST [you have something against *one* person]], IMP [you forgive]

Deriving *$k^{w}ene$ under conditionals II

Example (Mark 11:25)

(25) AT LEAST [you have something against *one* person]
Presupposition: likelihood(that you have something against *one* person) > likelihood(that you have something against {two, three, ...} people) ✓
Assertion: that you have something against one or more people (= at least one person)

Deriving *$k^{w}ene$ under conditionals III

Example (Mark 11:25)

(26) EVEN if [AT LEAST [you have something against *one* person]], IMP [you forgive]

Presupposition: likelihood(you have something against at least one person ⟶ you must forgive) < likelihood(you have something against at least {two, three, ...} people ⟶ you must forgive) ✓

Assertion: if you have something against at least one person, you must forgive ✓

Deriving *$k^{w}ene$ under polar question I

Example (John 7:51)

(27) demð ure éæ. *anigene* man bute hyne man ær hyre ; & wite hwæt he do. (Skeat 1878)
"Doth our law judge *any* man, unless it first hear him, and know what he doth?"

(28) WHETHER [EVEN [AT LEAST [our law judge *one* man without first hearing him and knowing what he does]]]
= {[EVEN [AT LEAST our law judge *one* man without ...]],
NOT [EVEN [AT LEAST our law judge *one* man without ...]]}

Deriving *$k^{w}ene$ under polar question II

Example (John 7:51)

(29) #EVEN [AT LEAST [our law judge *one* man without first hearing him and knowing what he does]]

Presupposition 1: likelihood that our law judge one man without due process > likelihood that our law judge {two, three, ...} men without due process ✓

Presupposition 2: likelihood that our law judge one man without due process < likelihood that our law judge {two, three, ...} men without due process X

Deriving *$k^{w}ene$ under polar question III

Example (John 7:51)

(30) EVEN [NOT [~~EVEN~~ [AT LEAST [our law judge *one* man without first hearing him and knowing what he does]]]

Presupposition 1: likelihood that our law judge one man without due process > likelihood that our law judge {two, three, ...} men without due process ✓

Presupposition 2: likelihood that our law *not* judge one man without due process < likelihood that our law *not* judge {two, three, ...} men without due process ✓

Deriving *$k^{w}ene$ under polar question IV

Example (John 7:51)

(31) {#[EVEN [AT LEAST [our law judge *one* man without ...]]],
✓[EVEN [NOT [~~EVEN~~ [AT LEAST [our law judge *one* man without ...]]]]]}