

Polarity sensitivity in translation

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Issues in Multilingual Frame Semantics: Comparability of frames

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- Polarity-sensitive items (PSIs) are expressions with a distribution limited to either affirmative or negative contexts (Giannakidou [2011](#)).

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- Polarity-sensitive items (PSIs) are expressions with a distribution limited to either affirmative or negative contexts (Giannakidou 2011).
 - *lift a finger* (Negative Polarity Item)
 - *at a moment's notice* (Positive Polarity Item)

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- Polarity-sensitive items (PSIs) are expressions with a distribution limited to either affirmative or negative contexts (Giannakidou 2011).
 - *lift a finger* (Negative Polarity Item)
 - *at a moment's notice* (Positive Polarity Item)
- Recent work by Israel 2011 emphasized that large numbers of PSIs sub-serve discourse routines like understatement and emphasis and that lexical-semantic classes and semantic roles need to be invoked when analyzing the properties of PSIs.

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- Polarity-sensitive items (PSIs) are expressions with a distribution limited to either affirmative or negative contexts (Giannakidou 2011).
 - *lift a finger* (Negative Polarity Item)
 - *at a moment's notice* (Positive Polarity Item)
- Recent work by Israel 2011 emphasized that large numbers of PSIs sub-serve discourse routines like understatement and emphasis and that lexical-semantic classes and semantic roles need to be invoked when analyzing the properties of PSIs.
- Here, we take the above findings as a point of departure and focus on the cross-lingual alignment of PSI types and tokens between German and English.

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- Questions of interest:
 - Can we find good translation equivalents for PSI types (LUs & constructions) across languages?
 - How do PSI tokens fare in translation?
 - If there is no perfect match, how do the aligned items differ?

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- Questions of interest:
 - Can we find good translation equivalents for PSI types (LUs & constructions) across languages?
 - How do PSI tokens fare in translation?
 - If there is no perfect match, how do the aligned items differ?
 - Do we have enough data?

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- Questions of interest:
 - Can we find good translation equivalents for PSI types (LUs & constructions) across languages?
 - How do PSI tokens fare in translation?
 - If there is no perfect match, how do the aligned items differ?
 - Do we have enough data?
- Disclaimer: the comparisons are somewhat intuitive here as we lack many of the relevant frames needed for a frame-matching approach as in Padó and Erk 2005's work on causation.

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- Languages: English, German
- PSI inventories
 - English: Israel 2011 (20 semantic clusters)
 - German: [CODII project](#) (Sailer and Trawinski 2006)
(simple list, info on licensing contexts per item, classification as to 'strength')
- Translation data
 - for types: linguee, leo.org as indicators of equivalents
 - for tokens:
 - Europarl corpus (human translations)
 - deepL output (automatic translations of instances from ukWaC / deWaC)

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Following Israel 2011, we can sort PSIs into 6 types.

features	polarity	gricean	example
emphatic, minimizing	NPI	-q, +i	budge an inch, sleep a wink, all that tons, utterly, awfully
emphatic, maximizing	PPI	+q, +i	
emphatic, maximizing	NPI	-q, +i	wild horses, ten-foot pole
emphatic, minimizing	PPI	-q, +i	at the drop of a hat
attenuating, minimizing	PPI	-q, -i	sorta, somewhat, a little bit
attenuating, maximizing	NPI	+q, -i	all that, much, long

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- PSIs are worth looking at through the lens of frame semantics and construction grammar because

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- PSIs are worth looking at through the lens of frame semantics and construction grammar because
 - if Israel is right and PSIs are associated with lexical classes and semantic roles

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- PSIs are worth looking at through the lens of frame semantics and construction grammar because
 - if Israel is right and PSIs are associated with lexical classes and semantic roles
 - we can follow Ruppenhofer and Michaelis [2016](#) and use FrameNet's frames and its interrelations to identify
 - additional PSI candidates (frame-mates)
 - the governing frames in which PSIs themselves like to be embedded

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For a song 'small amount of money'

- 1 I bought/got it for a song.
- 2 #The beggar asked me for a song.

in NP (frame adverbial)

- 3 I have eaten lunch there [for/*in weeks ^{Duration}].(existential perfect)
- 4 ... the pair have not actually spoken [for/in weeks ^{DURATION}]
... (existential perfect)
- 5 They have been visiting me [for/*in a coon's age ^{DURATION}].(continuative perfect)
- 6 I haven't known him [for/*in years ^{DURATION}]. Rather, it's only
been a couple of months since we started dating. (continuative
perfect)

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- Ruppenhofer and Michaelis 2016 showed how instances of comparison constructions can be configured as PSIs / as emphatic expressions
 - Comparisons of equality
 - Comparatives
 - Superlatives
- Roles/Slots: Evaluatee, Standard/Comparison class, Dimension, Degree/Difference

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- If there is no Evaluatee for which equality holds → 'superlative' interpretation (cf. FN's Beyond_compare frame vs Evaluative_comparison)
- Here POV is Standard whereas for simple comparisons it's the Evaluatee: *He is (not) as smart as his boss.*
- LUs: *beyond compare, incomparable, matchless, nonpareil, peerless, unequalled, unmatched, unrivalled, without compare, without equal, without match, without peer*
 - One can form more instances (e.g. using LUs from Evaluative comparison).
 - 7 NOBODY is **as** smart **as** you.
 - 8 NIEMAND ist **so** klug **wie** du.
 - 9 NOWHERE can **rival** St James' Park on a matchday
 - 10 KEIN anderer Ort kann es an einem Spieltag mit St James Part *aufnehmen* , ...
- The logic that holds for the English constructions translates to German.

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- POV: Evaluate
- Comparison class/Standard is exhaustive (11) or at least contains a paragon (12)
 - 11 [He ^{Evaluatee}] was taller [than any horse that they had ever seen ^{Standard}].
 - 12 A flutist might certainly be amazed at what the organ world calls a flute, since [some of them ^{Evaluatee}] are taller [than a house ^{Standard}] ...
- Outsize difference to others (13) or lack of difference to paragon (14).
 - 13 [It ^{Evaluatee}] 's a(n) infinitely/vastly/far^{Difference} smarter, more organic work that ... (emphatic PPI)
 - 14 [Rachel Ray ^{Standard}] has nothing^{Difference} [on you ^{Evaluatee}]! [culinary prowess] (emphatic NPI)
- This too translates to German.

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- POV: Standard
- Comparison class:
 - 15 She is the best student of her class.
 - 16 She is the best student of all time.
- There are attenuating MWE NPIs that involve superlatives
 - 17 (NEG) the sharpest knife in the drawer (??)
 - 18 (NEG) the brightest bulb (~ (NEG) (aller)hellste)
- The logic for the general superlative construction translates but German doesn't necessarily have parallel idiomatic MWEs building on the same etymology (metaphor).

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- Random sample of German PPIs and NPIs

	≥ 1 TL counterpart	no counterpart	Total
PPIs	21	5 (19%)	26
NPIs	11	16 (59%)	27

Table: CODII items with their EN counterparts acc.to linguee and leo

- NPIs lacking an English counterpart

19 Und der Likör im Le Royal ist ja auch NICHT **von schlechten Eltern** , oder ?

20 And the liqueur at Le Royal is not **from bad parents**, right?
(google translate)

21 Ich jedenfalls zahle für so einen Quatsch KEINE **müde Mark** !

22 In any case, I do not pay for this nonsense **tired Mark**!
(google translate)

- Random sample of English PPIs and NPIs

	≥ 1 TL counterpart	no counterpart	SL items
PPIs	14	13 (48%)	27
NPIs	12	12 (50%)	24

Table: Israel items with their DE counterparts acc.to linguee and leo

- PPIs lacking a German counterpart

23 I am **ever so** sorry but I do not have a copy of the lyrics .

24 Es tut mir **immer so** leid, aber ich habe keine Kopie der Texte. (google translate)

25 England **could do with** another wicket before tea .

26 England **könnte** mit einem anderen Tor vor dem Tee **fertig werden**. (google translate)

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- European parliamentary data
- 1,904,926 aligned sentences
- 50,073,151 German \leftrightarrow 52,534,447 English words
- We query for an item and then look at its aligned ‘translations’.
- Methodological problem
 - We do not know if either side is really a translation of the other or if both are translations of material in a third language.
 - We lack large parallel corpora where all the relevant meta-data is available.

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- Since PSI-hood is not a string-based property, we need to filter out instances sharing legal surface forms.
 - 27 ✓ There's **only so** much you can do.
 - 28 × ... not only so we can make changes ...
 - 29 ✓ Thank you **ever so** much.
 - 30 × Have you ever so much as called him?

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- Agreement in polarity of aligned items: neg-neg, pos-pos, pos-neg, neg-pos, . . . , lexneg-pos, lexpos-neg, . . .

31 Es **ist** NICHT **auszudenken** , was geschehen wäre , wenn die Geschicke Europas während des Kalten Krieges von sozialdemokratischen Regierungen gelenkt worden wären .

32 **God help us** if the socialists had run Europe during the cold war .

33 Das wäre für uns nicht **auszudenken** .

34 That would be **unthinkable** for us .

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- Match - 'same' frame(s)
 - 35 Mitglieder anderer Religionsgemeinschaften im Lande werden in eklatantem Widerspruch zu dem verfassungsmäßig verankerten Recht auf freie Religionsausübung hingegen **regelrecht** verfolgt .
 - 36 Members of other religious communities in the country , on the other hand , are liable to **downright** persecution , which is completely at odds with their constitutional right to freedom of religion .
- Deletion - the source side's frame (group) is missing from the target side
 - 37 Angesichts der Tatsache , dass heute auf elektronischem Weg Lobbyarbeit betrieben werden kann und wir **regelrecht** mit E-Mails *überschwemmt* werden können , müssen wir etwas unternehmen .
 - 38 But given the fact that there are now electronic means to *overwhelm* us with lobbying , we need to do something .

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- Shift - 'different' frame (cf. Modulation Salkie [2002](#))
 - **39** Die Empfehlung der Kommission und der Bericht können vor dem Hintergrund der zweifellos bedeutenden und nicht zu übersehenden Grundprobleme des Euro-Systems beurteilt werden .
 - **40** The Commission ' s recommendation and report may be evaluated in the light of the euro system ' s most fundamental problems , and these are undeniably major and **glaringly apparent** .
- Note:
 - I'm adopting mainly an 'information transfer' view on translation here.
 - For some PSI cases categorized as 'shift' may still represent the most frequent and/or idiomatic translation.
 - Likewise, match doesn't mean the translation is idiomatic.

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form	type	Trg.	insp	ins.	N- N	N- P	P- N	P- P	%P- P	%N- N	D	M	S
auszudenken	NPI	5	24	6	0	3	0	0	0	0	0	2	4
Blatt vor Mund	NPI	14	20	20	10	7	0	0	0	0,5	1	7	8
Hehl	NPI	11	20	20	14	5	0	0	0	0,7	2	9	8
Weisheit Schluss	letzter NPI	10	15	14	9	1	0	1	0,07	0,64	0	3	9
zu uebersehen sein	NPI	19	29	20	11	6	0	0	0	0,55	0	2	18
zur Sache	NPI	9	131	16	9	0	0	1	0,06	0,56	0	6	7
leidlich	PPI	6	10	7	0	0	0	7	1	0	0	0	6
regelrecht ADJ	PPI	16	78	20	1	0	0	19	0,95	0,05	1	8	10
regelrecht ADV	PPI	12	78	21	0	0	0	21	1	0	6	10	4
spätstens	PPI	12	20	20	0	0	0	15	0,75	0	2	5	3
unglaublicherweise	PPI	3	6	6	0	0	0	6	1	0	0	5	1
wimmeln	PPI	12	29	20	2	0	0	18	0,9	0,1	0	11	8
zum Teufel schicken	PPI	2	12	2	0	0	0	2	1	0	0	1	1

Table: Alignments between German matches for CODII items and their English counterparts

D: deletion; M: match; S: shift / Trg.: # target language forms

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form	type	Trg.	insp	ins.	N- N	N- P	P- N	P- P	%P- P	%N- N	D	M	S
auszudenken	NPI	5	24	6	0	3	0	0	0	0	0	2	4
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Hehl	NPI	11	20	20	14	5	0	0	0	0,7	2	9	8
Weisheit Schluss	letzter NPI	10	15	14	9	1	0	1	0,07	0,64	0	3	9
zu uebersehen sein	NPI	19	29	20	11	6	0	0	0	0,55	0	2	18
zur Sache	NPI	9	131	16	9	0	0	1	0,06	0,56	0	6	7
leidlich	PPI	6	10	7	0	0	0	7	1	0	0	0	6
regelrecht ADJ	PPI	16	78	20	1	0	0	19	0,93	0,05	1	8	10
regelrecht ADV	PPI	12	78	21	0	0	0	21	1	0	6	10	4
spätstens	PPI	12	20	20	0	0	0	15	0,75	0	2	5	3
unglaublicherweise	PPI	3	6	6	0	0	0	6	1	0	0	5	1
wimmeln	PPI	12	29	20	2	0	0	18	0,9	0,1	0	11	8
zum Teufel schicken	PPI	2	12	2	0	0	0	2	1	0	0	1	1

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- cannot be overlooked
- should not be overlooked
- who can fail to observe
- cannot fail to observe
- how can we fail to see
- who can also fail to see
- who can fail to see
- clear (2x)
- glaringly apparent
- ever increasing signs
- difficult not to be aware
- no one can be unaware
- far from negligible
- hard to neglect
- how can we fail to mention
- cannot fail to acknowledge
- incalculable*
- when we have a strong feeling
- no longer possible to keep track of

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form	type	Trg.	insp	ins.	N- N	N- P	P- N	P- P	%P- P	%N- N	D	M	S
give damn	NPI	7	7	7	2	5	0	0	0	0,29	0	3	0
of consequence	NPI	14	50	17	11	0	0	0	0	0,65	0	10	7
overstate importance	NPI	5	7	6	3	1	0	0	0	0,50	0	0	5
take lightly	NPI	5	105	12	11	1	0	0	0	0,92	0	12	0
think much of	NPI	10	16	16	15	1	0	0	0	0,94	0	11	4
trifle with	NPI	6	14	9	4	1	0	2	0,22	0,44	0	7	2
bear repeating	PPI	6	7	6	0	0	0	6	1	0	0	1	5
could well	PPI	14	20	20	0	0	0	20	1	0	9	5	5
ever since	PPI	6	20	19	0	0	0	18	0,95	0	15	3	1
ever so	PPI	11	13	12	0	0	0	12	1	0	2	0	0
just might	PPI	3	6	3	0	0	0	3	1	0	2	1	0
liable to	PPI	15	25	20	0	0	0	20	1	0	6	0	14
only so	PPI	3	31	3	0	0	0	3	1	0	0	0	3

Table: Alignments between English matches for the Israel inventory and their German counterparts

D: deletion; M: match; S: shift / Trg.: # target language forms

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form	type	Trg.	insp	ins.	N- N	N- P	P- N	P- P	%P- P	%N- N	D	M	S
give damn	NPI	7	7	7	2	5	0	0	0	0,29	0	3	0
of consequence	NPI	14	50	17	11	0	0	0	0	0,65	0	10	7
overstate importance	NPI	5	7	6	3	1	0	0	0	0,50	0	0	5
take lightly	NPI	5	105	12	11	1	0	0	0	0,92	0	12	0
think much of	NPI	10	16	16	15	1	0	0	0	0,94	0	11	4
trifle with	NPI	6	14	9	4	1	0	2	0,22	0,44	0	7	2
bear repeating	PPI	6	7	6	0	0	0	6	1	0	0	1	5
could well	PPI	14	20	20	0	0	0	20	1	0	9	5	5
ever since	PPI	6	20	19	0	0	0	18	0,95	0	15	3	1
ever so	PPI	11	13	12	0	0	0	12	1	0	2	0	0
just might	PPI	3	6	3	0	0	0	3	1	0	2	1	0
liable to	PPI	15	25	20	0	0	0	20	1	0	6	0	14
only so	PPI	3	31	3	0	0	0	3	1	0	0	0	3

Table: Alignments between English matches for the Israel inventory and their German counterparts

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- sollen
[shall/should]
- können (7x)
[can]
- können jederzeit
[can at any time]
- können tatsächlich
[can in fact/indeed]
- können gut 50 Jahre
[can ... a good 50 years]
- sehr gut können
[can very well]
- besser können
[could better] (cf. EN *had better*)
- viel besser können
[can much better]
- möglicherweise werden
[potentially become]
- sehr gut möglich sein
[very well possible]
- durchaus möglich
[quite possible]
- gelegentlich
[occasionally]
- oft
[often]
- potentiell
[potential]

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- We translate human data automatically, using 40 sentences per PSI.
- The source data is taken from the ukWaC and deWaC corpora.
- We inspect the output manually as before.

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form	type	Trg.	insp.	ins.	N- N	N- P	P- N	P- P	%P- P	%N- N	D	M	S
Blatt vor den Mund nehmen	NPI	2	40	40	30	0	0	0	0	0.75	0	30	0
keinen Hehl machen	NPI	3	39	36	36	0	0	0	0	1	0	35	0
Weisheit Schluss	NPI	24	40	38	37	0	0	1	0.03	0.97	0	0	0
spätestens	PPI	28	40	39	0	0	0	37	0.95	0	5	31	3
wimmeln	PPI	6	40	38	0	0	0	37	0.97	0	0	30	1
leidlich	PPI	8	40	36	0	0	0	36	1	0	7	20	6

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- 41 Aber was die Bauern seit Jahrhunderten tun , ist *für die Gärtner* nicht automatisch **der Weisheit letzter Schluss**
But what the farmers have been doing for centuries is not automatically *the gardeners' last conclusion*.
- 42 Über allem muss das Bekenntnis prangen , dass nichts an den beschriebenen Aktionen und Aussagen **der Weisheit letzter Schluss** ist .
Above all, the confession that nothing of the described actions and statements of wisdom is the last conclusion must flaunt .
- 43 Aber das kann ja nicht **der Weisheit letzter Schluss** sein .
But that can't be the wisdom's last resort.

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form	type	Trg.	insp.	ins.	N- N	N- P	P- N	P- P	%P- P	%N- N	D	M	S
overstate the im- portance	NPI	11	40	31	10	0	0	2	0,06	0,32	0	10	21
give a damn	NPI	16	40	39	6	29	0	2	0,05	0,15	0	21	2
bear repeating	PPI	18	40	39	0	0	7	29	0,74	0	1	0	35
cost an arm and a leg	PPI	1	40	39	0	0	0	0	0	0	0	0	0
ever so JJ	PPI	7	18	18	0	0	0	18	1	0	6	1	10
ever so RB	PPI	9	22	18	0	0	0	17	0,94	0	10	2	5

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- 44 Not so long ago a flatbed scanner would cost you **an arm and a leg**.
Noch vor nicht allzu langer Zeit würde ein Flachbettscanner Sie einen Arm
und ein Bein kosten.
- 45 You could send it to a data recovery company that would charge **an arm
and a leg** to recover the data if it is that valuable to you .
Sie konnten es zu einer Datenwiederaufnahme Firma schicken, die einen
Arm und ein Bein aufladen würde, um die Daten zurückzugewinnen, wenn
es so wertvoll zu Ihnen ist.

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- More than 40% of PSI types seem to lack coverage in large online translation resources.
- This seems to be so whether we start with CODII items or with Israel's items.
- Unclear how lack of coverage correlates with number of different translations in parallel corpora.

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- Some of the failures / let-downs of the automatic (deepL) translations e.g. on *arm and a leg* are hard to make sense of since we don't know the details of the technology or of the training data.
- Unclear if human translations tend to be more varied than automatic ones.

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- Given an NPI, its aligned item is relatively often not an NPI in a syntactically negative context.
 - It doesn't matter if we start from German NPIs or English NPIs.
 - Seems to hold also for automatic translations.
- The counterparts may be implicitly / morphologically negated
 - *X not give a damn (about Y) vs Y ist scheißegal*
- ... but they typically preserve the emphatic / attenuating effect.
- With PPIs, the parallel case seems much rarer.
- (Probably, the preservation of polarity is less important than the preservation of emphasis / attenuation and the use of an idiomatic expression.)

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- Inventories of PSIs often list canonical / frequent forms for PSI MWEs without capturing the possible variations
 - We are ... witnessing the start of a mass extinction event the likes [of which ^{Entity2}] have not been seen ... for at least 65 million years.
 - We'll never see the likes [of him ^{Entity2}] again.
 - 'Will we ever see [his ^{Entity2}] **like** again?' people ask at such times.
- There seem to very subtle differences even between related items (deletions with *regelrecht.RB* vs *regelrecht.JJ* , *ever so JJ* vs *ever so RB*).

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- Typically, inventories also do not specify the contextual requirements.
 - It is designed as a direct competitor for the likes [of the Toyota Celica and Alfa Romeo GTV *Entity2*].
 - Kick off your shoes and limbo the night away to the likes [of the Beach Boys , The Drifters and Bob Marley *Entity2*].

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- Frame semantics and construction grammar have much to offer to the analysis of polarity sensitivity.
- But currently, FrameNet does not include systematic information on PSI status and contextual requirements. (The Construction doesn't either, does it?)
 - e.g. *spitting image.n* and *very image.n* in Similarity are PPIs
 - many approximator LUs (e.g. *circa*, *approximately*, *good*) in Proportional quantity are PPIs
 - the items in Beyond compare are all sub-lexical NPIs (e.g. *nonpareil*, *without equal*)
 - *stand* in Tolerating is an NPI (also the MWE *stand the sight of* is missing)

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Canonical and
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CODII

The classical 4-way
division

■ Canonical

- 46 There's not a **shred** of evidence that people's civil liberties have been violated by it.
- 47 *There's a **shred** of evidence that specific's civil liberties have been violated by it.

■ Unexpected or specially licensed uses

- 48 And no, the land is not "**utterly** fouled." (rejoinder)
- 49 The fact that an opinion has been widely held is no evidence whatever that it is not **utterly** absurd ('rescued' by double negation)
- 50 It is a grim reality that, around that time, there were many US newspaper reports of servicemen who had lost **an arm and a leg** in the recent war. (literal)
- 51 Byrd's return is a **shred** of good news for Cincinnati which now has eight players on the disabled list. (?)

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Canonical and
non-canonical uses

CODII

The classical 4-way
division

- keinen Abbruch tun
- nichts am Hut haben
- nicht auf Kopf gefallen
- nicht auszudenken
- nicht bei Trost
- beim besten Willen
- kein Blatt vor Mund nehmen
- nicht zu deuteln
- nicht das Gelbe vom Ei
- kein gutes Haar lassen an
- nicht aus POSS Haut herauskönnen
- keinen Hehl machen aus
- keine müde Mark
- nicht von schlechten Eltern
- nicht der Weisheit letzter Schluss
- nichts zur Sache tun
- nicht zu uebersehen sein

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Canonical and
non-canonical uses

CODII

The classical 4-way
division

- die ohren steif halten
- fast
- immer auf dem Sprung sein
- leidlich
- nach Art von
- regelrecht
- Ruhe in die Sache bringen
- spätestens
- tipptopp
- über die Hutschnur gehen
- unaufhaltsam
- ungefähr
- unglaublicherweise
- wimmeln
- zum Henker
- zum Teufel wünschen

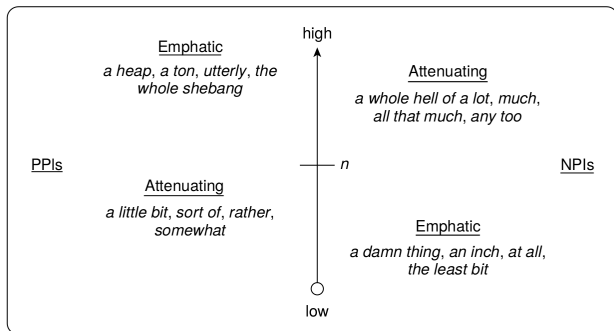


Figure 4.1 Four sorts of polarity items

Figure: 4 canonical types of PSIs, Israel 2011, p. 90