

Why are there no reciprocal uses of German *sich* in PPs?

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1 Introduction to the problem

1.1 The anaphor *sich* cannot have a reciprocal interpretation if it follows a preposition

- (1) a. *Sie glauben an sich.*
they believe at SE
'They have confidence in themselves/*each other'
- b. *Sie vertrauen sich.*
they trust SE
'They trust each other/themselves'
- c. *Sie glauben an-einander.*
they believe at-one.another
'They have confidence in each other.'
- (2) a. *Sie starrten auf sich.*
they stared on SE
'They stared at themselves/*each other'
- b. *Sie starrten sich an.*
they stared SE PTCL
'They stared at each other/themselves'
- c. *Sie starrten auf-einander.*
they stared on-one.another
'They stared at each other.'
- (3) a. *Paul und Maria riefen jeden Tag bei sich zu Hause an.*
Paul and Mary called every day at SE at home PTCL
'Paul and Mary called their respective homes every day.'
- b. *Paul und Maria riefen sich jeden Tag zu Hause an.*
Paul and Mary called SE every day at home PTCL
'Paul and Mary called each other every day at home.'
- (4) *Tanzen die nicht auch mal mit anderen? –*
dance they NEG also PTCL with others
*Nein, die tanzen nur mit *sich/einander.*
no they dance only with SE/one.another
'Don't they also dance with others? – No, they only dance with each other.'

- in grammatical descriptions of German the restriction is noted but not explained (cf. e.g. Zifonun et al. 1997: 1357)
- the restriction is a challenge for a treatment of reciprocals within the framework of Binding Theory (Chomsky 1981, 1986; Reinhart & Reuland 1993): no special

(syntactic) status of prepositional phrases, compared to (in)direct objects; binding into PPs is possible

- note: the restriction has nothing to do with the distinction between arguments and adjuncts (cf. Reinhart & Reuland 1993)

(5) *Sie sahen eine Schlange neben sich*
they saw a snake beside SE
'They saw a snake beside them(selves)/*each other.'

1.2 A seeming exception: the collective reflexive construction

- a restricted set of prepositions appears to license reciprocal readings of *sich*

(6) *Die Spieler wollten unter sich bleiben.*
the players wanted among SE remain
'The players wanted to remain among themselves.'

- but: the apparently exceptional behaviour of these prepositions is not unexpected; (6) is not a reciprocal sentence (cf. below)

2 A view on other Germanic languages and Romance

- many Germanic and Romance languages exhibit a functional and formal split between reflexive elements with a different phonological weight that involves a similar restriction on the possibility of expressing reciprocity

2.1 Scandinavian

- Generally, the *s*-suffix (Old Norse *-sk*) can express a variety of middle meanings (including passive) and reciprocity (with a limited number of predicates). The 'full' SE-anaphor (*seg, sig*) is excluded in reciprocal contexts.

2.1.1 Swedish (Holmes & Hincliffe 1994; Ramge 2002)

- some verbs occurring with *-s*:
brottas 'wrestle'; *enas* 'unite'; *förlikas* 'be reconciled'; *kivas* 'squabble'; *kramas* 'hug'; *kyssas* 'kiss'; *mötas* 'meet'; *pussas* 'kiss'; *råkas* 'meet'; *samlas* 'gather'; *ses* 'meet'; *slåss* 'fight'; *tampas* 'tussle'; *följas åt* 'accompany (one another)'; *hjälpas åt* 'help (one another)'; *skiljas* 'part'; *retas* 'tease'; *hörs* 'hear (one another)' etc.

- full anaphor *sig*: excluded in reciprocal contexts; instead the reciprocal pronoun *varandra* is used:

(7) a. *De träffa-s och tala-s vid.*
they meet-s and speak-s at
'They meet and talk to each other'

b. *De träffar varandra och talar med varandra*
they meet each.other and speak with each.other
'They meet each other and speak to each other.'

c. **De träffar sig.*
they meet SE

d. **De talar med sig.*
they talk with SE

2.1.2 Danish (Jones & Gnade 1981; Bergeton 2004)

- some verbs occurring with *-s*:
mødes ‘meet’; *træffes* ‘meet’; *ses* ‘see each other, meet’; *slås* ‘fight’; *skændes* ‘quarrel’;
trættes ‘quarrel’; *brydes* ‘clash, wrestle’; *kysses* ‘kiss’; *skiftes* ‘take turns...-ing’; *føljes*
‘accompany (each other)’; *hjælpes (ad)* ‘help each other’; *tales ved* ‘talk’; *snakkes ved* ‘talk,
chat’; *enes* ‘agree, bicker’; *forliges* ‘become reconciled’; *kappes* ‘compete’; *kives* ‘bicker’ etc.

- the anaphor *sig* is excluded in reciprocal contexts. The reciprocal pronoun *hinanden* has to be used instead:

(8) a. *Peter og Marie møde-s ofte på gade-n*
Peter and Mary meet-S often at street-DEF
‘Peter and Mary often meet in the street.’

b. *Peter og Marie møder ofte hinanden på gade-n*
Peter and Mary meet often each.other at street-DEF
‘Peter and Mary often meet (each other) in the street.’

c. *De slår sig i skolen.*
they hit SE in school.DEF
‘They hit themselves (get hurt)/*each other in school.’

2.1.3 Icelandic (Einarsson 1949; Petursson 1972; and similarly Faroese: Barnes & Weyhe 1994)

- some verbs occurring with *-st*:
hittast ‘meet’; *leiðast* ‘go hand in hand’; *talast við* ‘talk to each other’; *heilsast* ‘greet each other’; *bitast* ‘bite each other’; *berjast* ‘fight’; *kynnast* ‘get to know each other’; *rifast* ‘argue’; *sjást* ‘see each other’; *slást* ‘struggle’; *trúlofast* ‘become engaged’; *umgangast* ‘associate with each other’ etc.

(9) *Þeir hittu-st i gær*
they met-ST yesterday
‘they met yesterday’

- the full anaphor *sig* cannot be used reciprocally; reciprocal pronoun *hvor/hver annan*:

(10) *María og Sigurd elskum sig*
Maria and Sigurd love SE
‘Maria and Sigurd love themselves/*each other.’

(11) *Strákanir tala aldrei hvor við annan*
boys talk never each to other
‘The boys never talk to each other’

2.2 Romance

- Spanish and Italian display a similar asymmetry between full and reduced anaphors ('reduced' in the sense that they cannot be stressed).

2.2.1 Italian

- *si* (clitic) vs *sé* (tonic pronoun)
- the middle marker *si* may express reciprocity, while *sé* can only express reflexive relations:

(12) a. *Paolo e Maria si vedono.*
Paul and Mary SE see
'Paul and Mary see themselves/each other'

b. *Paolo e Maria vedono sé.*
Paolo and Maria see SE
'Paul and Mary see themselves/*each other.'

- *si* occurs only adjacent to the verb (clitic); *sé* can occur as prepositional complement:

c. *Tutto il contenuto Internet che viene letto, inviato e ricevuto può portare con sé un potenziale di rischio.*
all the content internet REL comes read sent and
received can carry with SE a potential of risk

'All the content in the Internet which is being read, sent and received, can carry with itself a risk potential.'

2.2.2 Spanish

- *se* (clitic) vs *sí* (tonic pronoun)
- the same asymmetry as in Italian:

(13) a. *Marta y Pedro se dieron un beso.*
Marta and Pedro SE gave a kiss
'Marta and Peter kissed (each other)'

b. *Juan y Pedro compraron regalos para sí.*
John and Peter bought gifts for SE
'John and Peter bought gifts for themselves/*each other'

3 Hypothesis

(14) THERE ARE TWO FORMS OF GERMAN *SICH*, ONE CLITIC (*SICH_{CL}*) AND THE OTHER PRONOMINAL (*SICH_{PRO}*), WHICH FUNCTIONALLY CORRESPOND TO THE FORMALLY DIFFERENTIATED EXPRESSIONS IN ROMANCE AND SCANDINAVIAN.

- *sich_{CL}* functions as a middle marker and *sich_{PRO}* as an anaphor
- formal and functional correspondences between Scandinavian, Romance and German:

	reduced form (middle, reciprocal)	full form (reflexive, no reciprocal)
German	<i>sich</i> _{CL}	<i>sich</i> _{PRO}
Scandinavian	<i>-s(t)</i>	<i>sig/seg</i>
Italian	<i>si</i>	<i>sé</i>
Spanish	<i>se</i>	<i>sí</i>

Table 1: Shared pattern of asymmetry

- Two lexical entries for German *sich*:
 1. *sich*_{PRO} $(\nabla(/zɪç/)_\sigma)_\omega$
 2. *sich*_{CL} $((/zɪç/)_\sigma)_\kappa$
- cf. Spanish *se/sí*:
 1. *si*_{PRO} $(\nabla(/si/)_\sigma)_\omega$
 2. *se*_{CL} $((/se/)_\sigma)_\kappa$ ($\langle \nabla \rangle$ indicates a *potential word or sentence accent*)

3.1 Evidence for a differentiation

- Standard tests for argument status seem to show that the expression of reciprocity is restricted to clitic *sich*

(i) Topicalised *sich* cannot have the reciprocal meaning

- (15) *SICH konnten die Spieler nicht leiden, aber sie mochten den*
 SE could the players not bear but they liked the
Trainer.
 coach
 ‘The players couldn’t bear themselves, but they liked the coach.’

(ii) *Sich* cannot have the reciprocal meaning if coordinated with another NP:

- (16) *Erst lobten die Spieler SICH und dann die Gegner.*
 first praised the players SE and then the opponents
 ‘The players first praised themselves and then their opponents’

(iii) *Sich* in ECM structures seems to be slightly better with a reciprocal meaning. A corpus search (Mannheim Korpus; Google), however, shows it to be extremely rare:

- (17) *Sie hörten sich beten.*
 they heard SE pray
 ‘They heard themselves/?each other pray’
- (18) *Sie ließen sich nicht allein.*
 they let SE not alone
 ‘They didn’t leave themselves/*each other alone’

- The question arises whether there is a syntactic or a phonological differentiation. The evidence above suggests a phonological split based on the ability to be stressed.

⇒ *sich* in reciprocal function cannot be stressed:

- (19) a. *Die Spieler lobten sich.*
the players praised SE
'The players praised themselves/each other'
- b. *Die Spieler lobten SICH*
'The players praised themselves/*each other'
- c. *Die Spieler lobten nur SICH.*
the players praised only SE
'The players praised only themselves.'

- the distribution of clitic *sich* is similar to that of a pronoun (i.e. it need not always be adjacent to a verbal host). Importantly, however, it cannot leave the middle field (cf. (15)):

- (20) *Sie versuchten, sich auf die Schultern zu klopfen.*
they tried SE on the shoulders PTCL pat
'They tried to pat themselves/each other on the back.'

3.2 The collective reflexive

- with a restricted set of prepositions reciprocal relations can be expressed with a full or even stressed reflexive pronoun, or – as in French – an object pronoun:

- (21) a. *Die Spieler wollten unter sich bleiben.*
the players wanted among SE remain
'The players wanted to remain among themselves.'
- b. *Cominciavano a chiacchierare fra sé.* (Italian)
begin.IMP.3PL PREP chat between SE
'They started chatting among themselves.'
- c. *Ils ont fait des bêtises entre eux.* (French)
they have done ART jokes between them
'They joked among themselves.'
- d. *cīvitātēs inter sē fidem et iūsiūrandum dant.* (Latin)
tribes among SE loyalty and oath give
'The tribes promise each other loyalty'
(Rubenbauer & Hofmann 1989: 229)
- f. *Duitsland en Frankrijk verdeelden het land onder zich.*
Germany and France relocated the land among SE
'Germany and France relocated the land among themselves' (Modern Dutch; Jenny Audring, p.c.)
- g. *They started chatting among themselves.* (English)

- The complement of the relevant prepositions (*inter, fra, among, between* etc.) always denotes a group partitioned into two or more subsets (possibly atomic). The preposition establishes a relation between those subsets. (The reflexive *sich* thus refers to the entire set, while the apparent reciprocal meaning component is contributed by the special semantics of the preposition.)
- Prepositions whose lexical meaning does not make reference to the internal structure of the set denoted by their complement are impossible (do not make sense) in this construction:

(22) a. *Die Spieler wollten unter sich bleiben.* (= (6))
 ‘The players wanted to remain among themselves.’

b. ??*Die Spieler wollten vor sich bleiben.*
 the players wanted before SE remain

c. ??*Die Spieler wollten auf dem Foto hinter sich stehen.*
 the players wanted on the picture behind SE stand

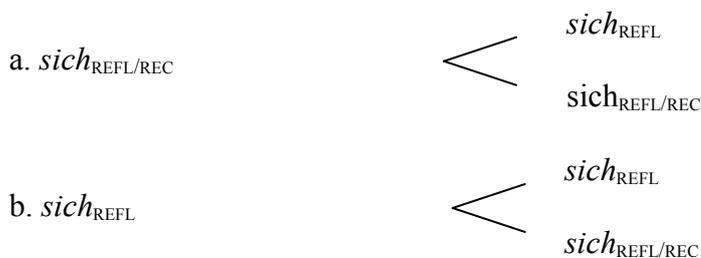
4 Historical development

In the light of the hypothesis in (14) new questions arise:

What is the explanandum?

- (i) the absence of a reciprocal use of pronominal *sich*_{PRO}
- (ii) the presence of a reciprocal use of clitic *sich*_{CL}

historically speaking, was the development (a) or (b)?



The data suggest (ii)/(b) as the correct answer; this conforms to Kemmer’s (1993) scenario, according to which a reflexive form is expected to develop middle meanings, while it is unexpected that a reflexive/reciprocal marker should lose its reciprocal function

4.1 Full anaphors in Latin, Gothic and High German

Data from Latin, Gothic and Old High German suggest that the reflexive use of the relevant expressions is older than the reciprocal use; apparent counterexamples turn out to be instances of ‘collective reflexivity’:

Latin
 (23) *Caesar milites hortatus est ut se sequerentur*
 Caesar soldiers admonish is that SE follow
 ‘Caesar admonished the soldiers to follow him/*each other.’

- (24) *Video eos inter se amare.*
 I.see them among SE love
 ‘I see them loving each other’
 [Terence Ad. 5, 3, 42; cited in Baldi 1974: 22]

Old High German

- (25) *Fluahhonte sih nalles uuidar-fluahhan, uzzan meer uuihan.*
 cursing SE not back-curse but more bless
 ‘Not to curse those who curse us/*each other, but rather to bless them.’
 [Rule of Benedict 4, 10]
- (26) *int isuohenti untar in uuer iz uuari fon in uuer sulih tati*
 andseek.PART under them who it were of them who such did
 ‘...and seeking among themselves the one who of them did such a thing.’
 [Tatian, Gospel Harmony, 158,7]

- Gothic: no reciprocal uses of *sik* in the Wulfila Bible (only in combination with *misso* ‘reciprocally’; cf. also Wright 1910: 189):

- (27) *jah auk þai frawaurhtans þans frijondans sik frijond.*
 and also the sinners the loving SE love
 ‘Even sinners love those who love them/*each other.’ [Luke 6,32]
- (28) *galeika sind barnam þaim in garunsai sitandam jah*
 equal are children art.dat in market place sit.part and
wopjandam seinā misso jah qipandam.
 speaking SE reciprocally and saying
 ‘They are like children who sit in the market place and talk to each other and say:....’

conclusion: neither *se* nor *sik* could be used with a reciprocal meaning in the earlier stages of development

5 Towards an explanation

5.1 Taking stock

1. distributional asymmetries like those characteristic of German *sich* can also be found in other Germanic and Romance languages
 → the asymmetry under discussion is a phenomenon of *considerable generality*
2. assumption of two lexical entries for *sich* (PRONOMINAL *sich* and CLITIC *sich*)
3. clitic *sich* represents an *innovation* that has been restricted to certain syntactic positions; it has developed from pronominal *sich*

- QUESTION: In how far does pronominal *sich* “not have the ‘lexico-semantic potential’ to function as a marker of reciprocity”?

(33) *Die Professoren lachen über sich*
 the professors laugh at SE
 ‘The professors laugh at themselves/*each other.’

(34) $\forall x[x \in \text{[[the professors]]} \rightarrow x \text{ laughs at } x]$

(35) *Hans und Maria lachen über sich*
 John and Mary laugh at SE
 ‘John and Mary laugh at themselves/*each other.’

- two readings of (35): distributive vs. collective conjunction
 - collective interpretation: (John and Mary) laugh at (John and Mary)
 plural Actor and Undergoer
 - distributive interpretation: (John laughs at John) and (Mary laughs at Mary)
und distributes over the VP

(36) Hans
 und > lacht über sich
 Maria

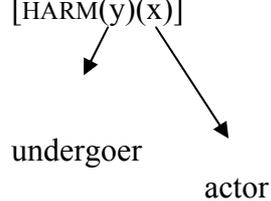
- ‘John laughs at Mary und Mary laughs at John’ (reciprocal) is not available; no expression of ‘cross-distribution’ is implied
- conclusion: if (pronominal) *sich* is a ‘referentially defective anaphor’ that is interpreted as a (syntactically) bound variable, it cannot have a reciprocal reading

5.2.2 The interpretation of clitic *sich*

- sich*_{CL} as a MIDDLE MARKER
- sich*_{CL} turns predicates describing two-participant situations into predicates describing one-participant situations (Kemmer 1993)
- slightly different perspective: *sich*_{CL} transforms 2-place predicates into 1-place predicates, i.e. into predicates that **assign only one thematic role**; this role is semantically maximally general
- PARTICIPANT: generalization over ACTOR and UNDERGOER (cf. Foley and van Valin 1984; van Valin 1993)
- more specific characterization: MIDDLE MARKING as a diathetic operation that indicates ROLE-INDIFFERENT VALENCY REDUCTION

(37) $(der)_\omega (Hans)_\omega (verletzt)_\omega (den)_\omega (Fritz)_\omega$
 DET Hans harms DET Fred
 ‘Hans hurts/injures Fred.’

‘There is an occurrence (event) of bodily harm in which John is the ACTOR in and Fritz is the UNDERGOER.’

(38) *verletz-*: $\lambda y \lambda x$ [HARM(y)(x)]


(39) (der)_ω (Hans)_ω ((verletzt)_ω (sich)_κ)_ω.
 DET John harms SE
 'John gets hurt.'
 'There is an occurrence (event) of bodily harm in which (only) John PARTICIPATES.'

(40) *verletzt sich*: λx [HARM(x)]
 ↓
 PARTICIPANT

- the maximally unspecific role PARTICIPANT is specified contextually; it is interpreted *in accordance with the semantics of the relevant verb* (i.e., a 'natural interpretation' is, by default, induced)
- more examples:

(41) *Hans rasiert sich*.
 John shaves SE
 'there is an event of shaving in which (only) John PARTICIPATES'
 natural interpretation: 'John shaves'

(42) *Dieser Wein trinkt sich gut*
 this wine drinks SE well
 'This wine drinks well.'
 'for all events e, if e is an event of drinking in which this wine PARTICIPATES, then e is generally a good event of drinking.'

- note: the interpretation of *sich* is restricted by competing expressions like non-reflexive pronouns (*ihn*) or generic ellipsis (cf. Gast & Hole 2003)

5.2.3 Middle marking in combination with 'naturally reciprocal verbs'

- in combination with 'naturally reciprocal verbs' middle marking (or 'role-indifferent valency reduction) gives rise to reciprocal readings

(43) *Hans und Maria küssten sich*.
 John and Mary kissed SE
 'There was an event of kissing in which (only) John and Mary participated'

(44) *Hans und Maria stritten sich*.
 John and Mary argued SE
 'There was an event of arguing in which (only) John and Mary participated.'

- conclusion: clitic *sich* has the potential to signal reciprocity because middle marking allows (and induces naturally) reciprocal readings in combination with a specific class of predicates ('naturally reciprocal predicates')

5.3 Reanalysis: from anaphor to valency-marker

- QUESTION: How was pronominal *sich* (anaphor) reanalysed as a middle marker?

5.3.1 Contexts of reanalysis

- reflexives with a middle semantics:
- input: *Hans wäscht sich* 'John washes SE'
- semantic reanalysis (generalization):

- (45) input: *Hans wäscht sich.* ‘John washes SE.’
 (46) source meaning (pronominal *sich*): $\forall x[x=Hans \rightarrow \exists e[WASH(x)(x)(e)]]$
 (47) target meaning (clitic *sich*): $\forall x[x=Hans \rightarrow \exists e[WASH(x)(e)]]$

- concomitant syntactic reanalysis:
wäscht sich is reanalysed as a one-place predicate
 - (48) source structure (pronominal *sich*): $[_{VP}[_{V} wäscht] [_{DP} sich]]$
 - (49) target structure (clitic *sich*): $[_{VP}[_{V} wäscht=sich]]$
- consequences: *sich* loses syntactic properties associated with an argument status
- note: *Hans wäscht sich* is VAGUE; interpretation depends on the conceptualization (mode of presentation) chosen by the interlocutors (one participant/two participants)

5.3.2 Why has clitic *sich* lost the ability to be stressed?

- middle markers (i.e. derivational or quasi-derivational elements) can generally not be stressed
- some assumptions about stress:
 - STRESS is an indicator of focus
 - FOCUS indicator of contrast (cf. Rooth 1985)
- sentences like (50) and (51) are asserted against the background of:
 John likes some $x \in \{\text{Fred, Bill, Mary ...}\}$

(50) *John likes [FRED]_F*

(51) *It is [FRED]_F that John likes.*

- *sich* can be stressed only when a contrast is possible
 - (52) *Hans wäscht SICH, nicht aber Maria.*
 John washes SE not however Mary
 ‘John washes himself, but he does not wash Mary.’
- this type of contrast is possible only if *sich* designates an individual
 → only with pronominal *sich*
- no contrast – no stress; no stress – no input for learners
 → the absence of a stress position in clitic *sich* is acquired as a lexical property
- result: the functional split manifests itself phonologically in the lexicon of German

5.4 Why has reanalysis been restricted to specific syntactic positions (direct and indirect objects)?

- if pronominal *sich* occurs in a prepositional phrase, reanalysis as a middle marker is syntactically blocked by the preposition

(53) *Hans und Maria lachen über sich.*
 John and Mary laugh at SE

- assumption: (53) is reanalysed semantically (‘mocking’)
 ‘There is an event of mocking (laughing at) in which (only) Hans and Maria participate.’
- How could this process of reanalysis manifest itself structurally?
- What meanings could be assigned to the constituents of the sentence, in such a way that the target meaning could be derived compositionally?
- note: spontaneous semantic reanalysis at the sentence level does not have any repercussions on the interpretation of the elements of a sentence, or the language

system as a whole, as long as it is not associated with the assignment of new meanings to the single elements, and new compositional structures

- **THREE SCENARIOS** how this (assumed) instance of semantic reanalysis could be associated with a process of syntactic reanalysis

1. *lachen über* ('laugh at') is reanalysed as a one-place predicate (roughly, 'mocking'), and *sich* as a middle marker

PROBLEM:

if [*lachen über*] is reanalysed as an intransitive verb, we would expect to find a new verb in the lexicon of German (*lachenüber*, *lachübern*, *lacheben*?), but not a new lexical entry of *sich*

- (54) [*Hans und Maria* [_{VP} *lachen* [_{PP} *über sich*]]]
 → [*Hans und Maria* [_V [_V *lachenüber*] *sich*]]

2. the prepositional phrase *über sich* is reanalysed as a middle marker, which combines with the predicate *lachen*

PROBLEM:

if the prepositional phrase [*über sich*] were reanalysed as a middle marker, this would not give rise to a middle marker *sich*, but to a marker *übersich* (univerbation); this process is clearly not general or frequent enough to trigger structural reanalysis

- (55) [*Hans und Maria* [_{VP} *lachen* [_{PP} *über sich*]]]
 → [*Hans und Maria* [_V *lachen=übersich*]]

3. *sich* is reanalysed as a middle marker, attached to the verb *lachen*

PROBLEM 1: in main clauses *lachen* und *sich* are not adjacent

- (56) [*Hans und Maria* [_{VP} *lachen* [_{PP} *über sich*]]]

PROBLEM 2: in subordinate clauses, the complement position of the preposition would be empty

- (57) [*weil Hans und Maria* [_{VP} [_{PP} *über sich*] *lachen*]]
 → [*weil Hans und Maria* [_{PP} *über ...*] [_V *sich=lachen*]]

- summary: reanalysis of *sich* as a middle marker in prepositional phrases is not possible because *sich* does not combine with the *verbal predicate*; it combines with the *preposition* (and the PP, in turn, combines with the verbal predicate)
- therefore, only the prepositional phrase as a whole could, in principle, be reanalysed as a middle marker; but such contexts are certainly not frequent enough to trigger structural reanalysis

6 Once again: Why are there no reciprocal readings of German *sich* in PPs?

- There are no reciprocal uses of German *sich* in PPs because
 - (i) pronominal *sich* does not have the lexico-semantic potential to signal reciprocity, and
 - (ii) clitic *sich*, which *does* have the relevant lexico-semantic potential, has failed to grammaticalize in the complement position of prepositional phrases because here, syntactic reanalysis was blocked by the preposition

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