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Generalized conjunction and relational nouns.

I will analyze the behavior of relational nouns in conjoined contexts. In most of the examples I address the coordination of nominal categories.

◊ Some of the cases such as *husband and wife* are problematic for the current theories of conjunction (Winter 2001, Heycock&Zamparelli 2005)

◊ I will analyze those and highlight some connections to the analysis of plural relational nouns like *sisters*

1. Introductory remarks

➢ **Relational nouns** (RNs) can be roughly defined as nouns having arguments.

The boundary between RNs and non-relational (**sortal**) nouns is not sharp (cf. *boss, picture*). A noun may have both a relational and a sortal reading (Vikner and Jensen 2002: 204-205). The exact definition of RNs is irrelevant to our current topic (see DeBruin&Scha 1988, Vikner and Jensen 2002, Asudeh 2005, Shmelev 1998, Koval 1990).

➢ **Correlate** of a relational noun - the entity to which the **referent** is linked (Lander 2000).

☞ Coordination semantics as applied to nominal categories so far has mainly focused on one-place nouns. I will argue that generalizing the proposed semantic mechanisms to RNs is not trivial.

2. The problem: relational noun conjunction versus sortal noun conjunction

2.1. Intersective conjunction

🕮 Other terms: *generalized conjunction* (Partee&Rooth 1983), *boolean and* (Krifka 1990), *joint reading* (Heycock&Zamparelli 2005).

(1) *John is a liar and thief.*

➢ Partee&Rooth (1983) analyzed examples like (1) as part of a broadly cross-categorial generalization of Boolean (sentential) conjunction. In the case of <e,t>-type expressions this amounts to **set intersection**.

➢ Winter (2001) provides a way of generalizing their schema to some cases of collectivity like (2).

(2) *Mary and John met.*

➢ Intersective conjunciton also provides an account of coordination of <<e,t>t>-type expressions.

(3) *I saw a soldier and a sailor in the yard.*

➢ It also works for some cases of RN conjunction (4) if we assume (quite standardly, see Lander 2000, Vikner and Jensen 2002, Asudeh 2005 inter alia) that RNs denote sets of pairs.

(4) *Bill is my friend and colleague.*

2.2. Group-forming conjunction

🕮 Other terms: non-boolean and (Krifka 1990, Hoeksema 1988), split reading (Heycock&Zamparelli 2005).

(5) *That man and woman are in love.*

☞ The whole conjoined phrase takes just one determiner.

☞ *Man and woman* does not refer to one entity that is both a man and a woman at the same time.

🕮 Heycock&Zamparelli (2005) propose a unified meaning of *and* based on the readings like (5). They suggest that **set product** operation corresponds to natural language *and*.

(6) $SP(S^1,...,S^n) = \{X : X = A^1 \cup ... \cup A^n, A^1 \in S^1,..., A^n \in S^n\}$

☞ Problems for H&Z approach:

- The generalization of this account to DP coordination and conjunction of other categories is not worked out in detail (cf. Heycock&Zamparelli 2005: 38-42).
- RN coordination also becomes problematic if we assume that RNs denote sets of pairs.

The denotation of the phrase like *friend and colleague* derived by (6) should contain, among others, a set of two pairs {<x,y>,<u,v>} where *x* is a friend of *y* and *u* is a colleague of *v*.

→ But there is no context in which *friend and colleague* can refer to a friend of *y* and a colleague of *v* with all the four individuals distinct.

→ It is not clear what kind of filtering mechanism may filter out the undesired pairs.

H&Z theirselves treat *friend* and *colleague* as one-place predicates.

→ However the assumption that RNs denote sets of pairs is justified by numerous works dealing with RNs (see Asudeh 2005, Lander 2000, Vikner and Jensen 2002, De Bruin and Scha 1988, Partee 1989, Barker 1999 among others)

🕮 Krifka (1990) developes the initial idea of Link (1983) that in such cases the whole conjunction refers to a group containing the conjuncts. He generalizes Link's ⊕ operator to apply to arbitrary types. In fact his operator yields the right result for conjoined RNs combined with possesors.

(7) *John's girlfriend and brother came to his party.*

The interpretation derived by Krifka's operator predicts that *girlfriend and brother* refers to a group of people that has two parts with one being a brother and the second being a girlfriend and both having the same correlate - John.

➢ Several alternative accounts to Krifka (1990) have been proposed (see for example Winter 2001: 30-45 for an overview) but I do not aim to choose the most adequate one out of those as I'm mostly interested in the reciprocal conjunction.

2.3. Reciprocal conjunction

(8) *The novel is about a husband and wife.*

☞ *A husband and wife* in (8) refers to two people who are *husband* and *wife* of each other.

☞ This interpretation can not occur with sortal nouns.

Reciprocal vs. intersective

➢ This can not be an example of intersective conjunction. In fact *husband'* and *wife'* have an empty intersection. The following observation seems to be true:

(9) *The reciprocal conjunction arises when the sets in the denotations of the two conjoined relational nouns do not intersect.*

On the contrary to *brother* and *sister*, for instance, the denotations of *friend* and *colleague* have a non-empty intersection.

This is not a sufficient condition (cf. *brother and copy*). More to be said in sections 3.3 and 5.

➢ There are no examples ambiguous between reciprocal and intersective reading. The two are in **complementary distribution**.

Reciprocal vs. group-forming

- ➢ Here, on the contrary, we get ambiguous examples like (10)[1].

(10) *John invited an uncle and nephew to the party.*

☞ *Uncle and nephew* here may either refer to *John's uncle and nephew* or to two people who are just *uncle and nephew of each other* and not John's relatives.

- ➢ If we accept that the possessive reading is derived by group-forming mechanism it is clear that the reciprocal reading can not be group-forming.

Is it yet another meaning of *and*? Probably not.

- No 3-ways ambiguous examples.
- Complementary distribution with intersective conjunction.
- Quantification over groups: reciprocal conjunction allows for just one article.

3. Reciprocal conjunction: analysis

3.1. Pragmatic possibilities

Consider the following example taken from an amazon.com description of some movie:

(11) *A hilarious movie about* *a* *husband and* *a* *wife who fall in love. Only they are not married to each other.*

☞ When we have two articles reciprocity becomes cancellable. But a similar continuation would not be possible in (8).

- ➢ Reciprocity in (11) is pragmatic. Here is a sketch of possible analysis:
  - The RNs shift to one-place predicates by existentially quantifying the correlate.
  - This shift is triggered by the presence of article (this is the case where the nouns shift and not the article. Partee 1999 argues for the possibility of shifts in other direction).
  - The reciprocity is derived by a plausible pragmatic principle enforcing the conjuncts to be somehow related[2].

- ➢ But such an analysis is not available for (8).
  - Reciprocity can not be cancelled there (and hence it is not likely to be pragmatic).
  - In (8) there is no trigger for existentially binding the arguments of RNs

3.2. 3-step derivation

I propose to derive the reciprocal interpretation in three essential steps.

- ➢ First, the denotations of the two relational nouns are adjusted to make the intersective conjunction applicable.
- ➢ Second, intersective conjunction applies.
- ➢ Third, a special collectivity operator derives the right result.

The combination of intersective conjunction and collectivity explains the dual properties of reciprocal conjunciton observed above.

(12) Intersective conjunction schema (Winter 2001: 23)

$$\sqcap_{\tau(\tau\tau)} = \begin{cases} \wedge_{t(tt)} & \text{if } \tau = \mathrm{t} \\ \lambda X_\tau.\lambda Y_\tau.\lambda Z_{\sigma_1}.X(Z) \sqcap_{\sigma_2(\sigma_2\sigma_2)} Y(Z) & \text{if } \tau = \sigma_1\sigma_2 \end{cases}$$

☞ This schema can be applied to two relational nouns like *brother* and *sister* if the arguments of one of the relational nouns get inversed.

On my account the **inversion** is the first step in derivation of reciprocal conjunction:

[1] Special thanks are due to Barbara Partee for pointing the English examples of this kind to me.

[2] The idea of such a principle is due to Igor Yanovich. I leave the detailed examination of such pragmatic possibilities for future research.

(13) $inv_{(eet)(eet)} = \lambda Y_{eet}.\lambda u.\lambda v.Y(v)(u)$

For now, let's view *inv* as a type adjusting operator triggered by the fact that the normal intersective conjunction would yield an empty set applied to the two RNs in question.

- I suggest that *inv* applies to the second noun.

This makes the whole conjunction somewhat assymmetric and I assume that this assymmetry shows up in the fact that for most of the pairs giving rise to the reciprocal conjunction one order is far more frequent than the other one (for instance, *brother and sister* is more frequent than *sister and brother*).

- The successive application of (13) and (12) gives the result below:

(14) $\lambda x.\lambda y[R_1(x)(y) \wedge R_2(y)(x)]$

- This is then an input to a special collectivity operator that essentially takes a relation and returns a pair of individuals connected by that relation.

(15) $\lambda R \lambda Z \exists x \exists y[Z = x \oplus y \wedge R(x)(y)]$

- The resulting interpretation of *brother and sister* is shown in (16).

(16) $\lambda R \lambda Z \exists x \exists y[Z = x \oplus y \wedge brother'(x)(y) \wedge sister'(y)(x)]$

- This analysis predicts that reciprocally conjoined RNs can be used with just one article.
- It essentially includes an application of intersective conjunction schema. Hence we treat reciprocal conjunction as a special variant of intersective conjunction (and predict that the two interpretations are complementarily distributed).

A possible alternative analysis would be to design a single operator that applies to two relations and to integrate the inversion of arguments into this operator. But this would not explain why intersective conjunction and reciprocal conjunction are in complementary distribution and why we do not get the examples that are 3-ways ambiguous.

3.3. Lexical restrictions

As noted in section 2.3, to be conjoined reciprocally two RNs must have disjoint denotations. However this does not seem a sufficient condition.

- *brother* and *copy* impose contradictory requirements on their referents (brothers are animate but copies are inanimate) and hence have disjoint denotations. Yet *brother and copy* does not have a reciprocal reading.
- Another similar example is *friend and enemy*. Here the reciprocal interpretation of the conjoined phrase is hindered by the fact that friends and enemies are normally mutual.

2 possible approaches

- **Filtering approach**: the recirpocal interpretation is nevertheless derived in all cases and then filtered out by some pragmatic mechanism[3].
- **Lexical approach**: there are additional lexical restrictions on reciprocal interpretation.

◊ Pragmatic adjustments.

If Bill is John's brother and is very similar to John (17) seems acceptable. Here we admit that copies might be animate.

(17) *Bill is a brother and copy of John.*

Alternatively we might imagine a scenario where copies have animate correlates. This might be true is people are cloned and the word *brother* is used to refer to the "original" person. *Brother and copy* can refer to a man and his clone in such a situation.

[3] The possibility of such approach and examples like (18) were first suggested to me by Barbara Partee.

Quite similarly, if we think of a situation where there are pairs of people such that the first member of each pair is a friend of the second one but the second one is the enemy of the first one (18) seems quite acceptable.

(18) *Whenever a friend and enemy find themselves next to each other at dinner, they make sure to talk only about the weather.*

Finally, *friend and enemy* can also be adjusted to accommodate intersective reading. For instance we may somewhat loosely refer to Brutus as *Caesar's friend and enemy*.

➢ These examples demonstrate that under certain (sophisticated) conditions *brother and copy* and *friend and enemy* can in fact have a reciprocal reading. At first glance, this seems to favor the filtering approach.

However it seems that the presence of fixed lexical requirements is more plausible in this case after all:

➢ Intersective conjunction and reciprocal conjunction impose contradictory requirements on the nouns but there are boundary cases of nouns that do not satisfy either requirement and that can be adjusted to "go in either direction".

➢ Additional evidence in favor of lexical approach comes from reciprocal plurals like *sisters* where the presence of reciprocal interpretation clearly seems a lexical matter (see sections 4 and 5 for more discussion).

But to maintain the lexical approach we need to formulate the precise lexical restrictions.

◊ Intuitively to make the reciprocal interpretation possible two RNs should denote the inverse relation.

This can not be true as it stands. For instance, the denotation of the word *brother* contains the pairs $<p,q>$ of male brothers that do not have a corresponding inverse pair $<q,p>$ in the denotation of *sister*.

◊ Interestingly, it turns out that a single inverse pair in the denotations of two relational nouns may trigger the reciprocality in coordination construction.

This is exactly what goes on with *brother and copy*. As soon as we admit that there is a pair $<x,y>$ of cloned people such that *brother'(x)(y)* and *copy'(y)(x)*, the reciprocal interpretation immediately becomes available.

(19) *The reciprocal interpretation of two relational nouns in coordination construction interpretation is available iff their denotations have an empty intersection but contain at least one inverse pair.*

This is contradictory to the implicit requirement of the intersective conjunction.

(20) *The intersective interpretation of two nouns in coordination construction is available iff the intersection of their denotations is not empty.*

➢ To adjust the pairs that satisfy neither (19) nor (20) we can either force them into non-empty intersection or force inverse pairs into their denotations.

➢ **Lexical restrictions in fact mimic our reciprocal conjunction schema**. What (19) says is that *inv* is applicable only if its application would yield at least one identical pair in the output denotations. This identical pair is needed because it will be the output of the intersective conjunction which is the next step in the derivation I propose.

4. Reciprocal plurals

➢ Some plural RNs also give rise to recirpocal interpretation (Eshenbach 1993):

sisters, friends, colleagues, neighbours

◊ More similarities between conjoined and plural RNs:

- They can occur in the same syntactic environments (with a possessor and as predicates)

(21) *a. John and Mary are husband and wife/spouses.*
b. John's brother and sister/sisters came to the party.

- Lexical restrictions on both interpretations are quite similar (see sections 4.1.2 and 5)

It would be nice to derive the two obviously similar meanings in a similar way.

4.1. Previous proposals

4.1.1. Hackl 2002

Hackl proposes to derive the reciprocal interpretation of plurals (and more broadly, of all *essentially plural predicates* on his terminology) in two steps:

- First a silent reflexive pronoun is inserted into the structure of RN
- Second the double star operator ** (Krifka 1986, Beck 2000) applies

The reflexivized version of *next-door neighbour* looks like $\lambda x.next\_door\_neighbour'(x)(x)$

- ➢ This clearly yields an empty set as it is (cf. also Barker 1999)
- ➢ This leads Hackl to assume that the plural RN has to be **cumulative**:

*next_door_neighbours'**(x)(x)* essentially refers to a set in which for every individual there is another individual such that *next_door_neighbour'(x)(y)* and *next_door_neighbour'(y)(x)*. The formal definition of double star is given below:

(22) ***R(x)(y)=1 iff*
R(x)(y)=1 or $\exists x_1 x_2 y_1 y_2 (x_1 \oplus x_2 = x \wedge y_1 \oplus y_2 = y \wedge {**}R(x_1)(y_1) = 1 \wedge {**}R(x_2)(y_2) = 1)$

- ➢ Hackl believes that **cumulative inference patterns** (23) are valid for plural reciprocal RNs.

(23) *John and Mary are next-door neighbours.*
Mary and Sue are next-door neighbours.

∴ *John, Mary and Sue are next-door neighbours.*

It is doubtful that those patterns are valid for all plural reciprocal RNs (confirmed by native speakers' intuition). In fact, Hackl acknowledges the weakness of this point in a footnote (p. 177) but he concludes:

> I assume provisionally that we should take the weak truth-conditions of *next-door neighbors* to be ndicative of the truth-conditions provided by the semantics of the essentially plural predicate alone and attribute the stronger requirements of *2nd-degree cousins* to a process of pragmatic strengthening. Should that be not sufficient, one could alternatively derive essentially plural predicates as covertly strongly reciprocal predicates. Such a modification would not alter the main point of the paper namely that essentially plural predicates are covertly, inherently reciprocal, however.

- ➢ On Hackl's analysis, to derive the reciprocal plural reading a RN should denote a **symmetric and irreflexive** relation.

◊ Problems for Hackl's analysis in addition to the doubtful nature of (23):

- It can be generalized infinitely: if there is a chain all the inhabitants of some city are predicted to be *neighbours* (Eschenbach 1993). Similarly, *next-door neighbours* is predicted to be true of all the inhabitants of a long corridor no matter how long it is.
- It does not give a straightforward explanation of lexical restricitons. In fact the symmetry requirement seems too strong, as *sister'(x)(y)* does not imply *sister'(y)(x)* (cf. the next subsection and section 5).
- It is not clear why the reciprocal meaning should be connected with reflexive pronoun insertion. For instance, Barker 1999 argues that forming a reflexive predicate out of RNs is an unfavored operation that requires additional contextual support.

- It is not clear if the derivation is lexical or syntactic. Hackl (2002: p 178-180) finds arguments in favor of both approaches.

4.1.2. Eschenbach 1993

Eshenbach proposes a special ^{rec} operator to derive the reciprocal *sisters*.
(24) uses slightly more straightforward notation than the Eschenbach's original one. $\subseteq$ and $\cap$ are used as generalized order and set intersection symbols.

(24) $\quad ^{rec} = \lambda R \lambda Z(cmplx(Z) \wedge \forall x, y \subseteq Z[x \cap y = \varnothing \rightarrow R(x)(y)])$

➢ On Eschenbach's account the reciprocal plurals quantify over groups and are not cumulative.

➢ Eschenbach formulates more precise lexical restrictions: to derive a reciprocal plural meaning a RN should be **non-antisymmetric**. This is parallel to our statement that to derive the reciprocal conjoined meaning a single inverse pair in the denotations of two RNs is sufficient.

➢ For the case of plural RNs combined with possessives (*sisters of Peter*) Eschenbach proposes to use the ordinary **ct-pl** (count plural) operator.

(25) $\quad$ **ct-pl**$= \lambda P \lambda x(cmplx(x) \wedge P(x))$

➢ This combines with $\lambda u \lambda v(R(u)(v))$ by functional composition. The resulting meaning of *sisters of Peter* is $\lambda x(cmplx(x) \wedge sister'(p)(x))$.

4.1.3. Summary

➢ The accounts of Hackl and Eschenbach are not strictly speaking incompatible

➢ They differ most essentially in the type of plural predicate assumed for the reciprocal plurals.

➢ Eschenbach's proposal is very similar to my account of conjoined RNs
- The lexical requirements are similar. For reciprocal plurals there is no correspondence to our empty intersection requirement but we will see that the latter is not strictly speaking valid.
- Her mechanisms for deriving the reciprocal reading and the one combining with possessives are different.

4.2. My amendments to those proposals

In fact Eschenbach's formula is equivalent to the following:

(26) $\quad ^{rec} = \lambda R \lambda Z(cmplx(Z) \wedge \forall x, y \subseteq Z[x \cap y = \varnothing \rightarrow R(x)(y) \wedge inv(R(x)(y))])$

➢ This states the reciprocity requirement more explicitly and.

➢ The presence of *inv* motivates the lexical restrictions on reciprocal plurality: if R were antisymmetric the set $\{x, y \mid R(x)(y) \wedge inv(R(x)(y))\}$ would be empty.

◊ (26) allows us to view the reciprocal plurals as another kind of collectivity operator (namely one with universal quantification instead of existential) imposed on the output of *inv* and intersective conjunction. This supports the initial idea of Krifka (1990) about the close semantic relationship between conjunction and plurals[4].

What about the possibility of cumulative inferences?

◊ The presence of strongly reciprocal readings does not strictly speaking exclude the possibility that in some cases Hackl's schema is applied. In the next section we will see some other examples where ** applies.

4.3. Further predictions of the analysis: conjoined plurals

In this section we will look at a range of possible interpretations for examples like *brothers and sisters*.

[4] I assume this relation to be of semantic nature. I do not mean to posit a syntactic structure in which the plural form would be derived on top of conjunction.

➢ Initial assumption (also implicitly present in Eschenbach's work): the relations denoted by RNs can hold not only between individuals but also between sets of individuals and between individuals and sets.

➢ This makes *inv* applicable to the denotations of plural RNs like *brothers*.

The readings of *brothers and sisters* are illustrated in the table below:

(27) The interpretations of *brothers and sisters*

Plural	Conjunction	Example
reciprocal	group-forming	a. *Brothers and sisters create different kinds of atmosphere in the family.*
non-reciprocal	reciprocal	b. *Brothers and sisters always prefer to live together* (at least on one of the readings: brothers and their sisters)
non-reciprocal	group-forming	c. *John's brothers and sisters came to his party.*

➢ The ** operator can also be applied to RNs giving the interpretations in (28).

(28) *In this city the professors are neighbours of the students.*

Here it is not necessary that every professor is a neighbour of every student. The sentence is true if for every professor x there is a student y such that *neighbour'(x)(y)* and *neighbour'(y)(x)*.

➢ The cumulative plural interpretation of RNs can combine with reciprocal conjunction to derive the meaning that roughly can be paraphrased as '*the set of n-tuples such that for all the tuples the relations in question hold*' cf. (29)[5].

(29) *For the roles of Tarzan and Jane we need brothers and sisters. We want the characters to look like each other.*

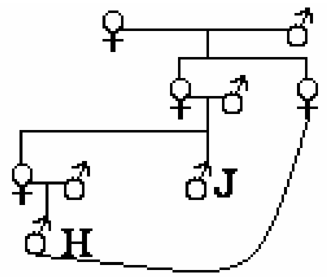
Here *brothers and sisters* corresponds to the set of brother-and-sister pairs. I assume that the fact that we are referring to pairs is pragmatically forced by the context, cf. (30).

(30) *We want brothers and sisters for the roles of the peasants. They should look like relatives.*

5. Lexical restrictions revisited

Some interesting cases of kinship might be challenging to our approach. Assume for instance that in model M, a nephew of John (named Harry in a diagram below) marries his aunt. Then he will be both John's uncle and John's nephew.

(31)



☞ *uncle'* and *nephew'* do not have an empty intersection in M.

This situation might also be problematic for our account of plurals if we assume that $uncle'(x)(y) \rightarrow nephew'(y)(x)$. If we want to preserve this inference we immediately get *uncle'(J)(H)* and *uncle'(H)(J)* (similarly for nephew).

☞ *uncle'* and *nephew'* are non-antisymmetric. But *uncles* and *nephews* can't be reciprocal.

➢ What is crucial for the presence of reciprocal plural meaning is the entailment of the form:

$R_1(x)(y) \rightarrow R_2(y)(x)$

[5] The importance of the examples like (29) was first pointed to me by Sergey Tatevosov.

In the case of plurals $R_1$and R_2 are the same.

🕮 Schwarz (2006) suggests that more precisely Strawson-entailment is relevant.

🕮 Von Fintel (1999) argues that Strawson-entailment is relevant for NPI-licensing.

(32) *A Strawson-entails B iff the conjunction of A and the presupposition of B entails B.*

For instance, the gender information carried by sister is most likely presuppositional. All the sentences in (33) convey that Kim is a female.

(33) *a. Kim isn't his sister*
b. Perhaps Kim is his sister.
c. Is Kim his sister?

But *uncle(x)(y)* clearly does not Strawson-entail *uncle(y)(x)*. It just happends that in M illustrated in (31) both are true.

- The application of *inv* operator is still motivated by inverseness (more precisely Strawson-inverseness) constraint on the relations.

The distribution of intersective conjunction and reciprocal conjunction is still in most cases complementary. However the sentence (10) (repeated here as (34) uttered in the situation (31) can be 3-ways ambiguous.

(34) *John invited an uncle and nephew to the party.*

- I do not regard the presence of such situations as sufficient for postulating three different meanings of *and*. As I have argued in section 4, *inv* is a good candidate to account for all the cases of reciprocal plurality. The presence of *inv* makes our 3-step derivation for reciprocal conjuction still more plausible than the one-step alternative.
- Finally, there are more directions for generalization of *inv* (see the next section).

Conclusions and further challenges

- **Reciprocal conjunction** is limited to relational nouns and can be derived in 3 steps essentially including the intersective conjunction schema and application of *inv*.
- **Reciprocal plurals** are very similar to reciprocal conjunction
- The inversion operator can also be applied in the case of **reciprocal plurals**
- I follow Schwarz (2006) in formulating the lexical restrictions on reciprocal plurality.
- Consequences for **coordination semantics**:
  The behavior of conjoined RNs and most notably the ambiguity of the examples like (34) seems to disfavor the unified treatments of *and* such as Winter (2001), Heycock&Zamparelli (2005). The former does not handle the split readings, the latter is not generalizable to RNs
- Several other directions to extend my analysis:
  - Comitatives like Russian *muž s ženoj* (literally *husband with wife*, in English rather *husband with his wife*)
  - Reciprocal verbs. Cf. the recent attempt by Rubinstein (2006) where she assumes the complex verbs with possible changes in the order of arguments (and possibly even other categories cf. *similar*).
  - The study of reciprocity in other categories may make the syntactic status of *inv* clearer.
  - The pragmatics of coordination and the principles that make *a husband and a wife* reciprocal require further investigation.
- Further challenges:

Examples like *husband wife and mother-in-law* (pointed to me by a SALT reviewer) seem to involve RNs shifted to 1-place predicates and used as just role labels. Cf. the following sentence taked from a web description of some Australian marriage ceremony.

(35) *A general law is that a husband and mother-in-law must not speak to each other, or even come near.*

Acknowledgements

I would like to thank Barbara Partee for encouraging me to carry out this work and for her extremely useful comments, James Pustejovsky for the discussion of possible qualia structures of relational nouns, Igor Yanovich for his comments on the pragmatics of coordination and Sergey Tatevosov for his valuable comments. I am also grateful to the anonymous reviewers of FDSL 6.5, SALT and FSIM. The errors remain, of course, my own.

References

Asudeh, Ash. 2005. Relational Nouns, Pronouns, and Resumption. *Linguistics and Philosophy* vol. 28 number 4 August 2005: 375-446. Springer, Netherlands.

Barker, Chris. 1999. Temporary Accomodation: I am the Oldest of My Siblings. *Studies in the Linguistic Sciences* vol. 29 number 1: 3-13. University of Illinois.

Beck, Sigrid. 2000. Star operators episode 1: Defense of double star. In Kiyomi Kusumoto and Elisabeth Villalta (eds.) *University of Massachusets occasional papers in linguistics 23. Issues in semantics*: 1-23. GLSA, University of Massachusets, Amherst.

De Bruin, Jos, and Remko Scha. 1988. The interpretation of relational nouns. In: Steven Bird (ed.) *Meeting of the Association for Computational Linguistics*: 25-32. ACL, Morristown, NJ.

Eschenbach, Carola. 1993. Semantics of Number. *Journal of Semantics* 10: 1-31.

Hackl, Martin. 2002. The Ingredients of Essentially Plural Predicates. In Masako Hirotani (ed.) *Proceedings of the 32nd North East Linguistic Society conference*: 171-182. GLSA, University of Massachusetts, Amherst.

Heycock, Caroline and Roberto Zamparelli. 2005. Friends and Colleagues: Plurality, coordination, and the structure of DP. *Natural language semantics*, vol. 17, number 3: 201-270. Springer.

Koval, Sergei. 1990. Rol' relyatsionnyh suschestvitel'nyh v postroenii slovosochetaniya i predlozheniya (na materiale russkogo i angliiskogo yazykov). [The role of relational nouns in building phrases and sentences (evidence from Russian and English)] PhD Dissertation. Leningrad

Krifka, Manfred. 1986. Nominalreferenz und Zeitkonstitution: Zur Semnatik von Massentermen,Pluraltermen und Aspektklassen. PhD. Thesis University of Munich.

Krifka, Manfred. 1990. Boolean and non-boolean “and”. In: Lászlo Kálman and Lászlo Polos (eds.) *Papers from the second symposium on Logic and Language*: 161-188. Budapest, Akadémiai Kiadó.

Lander, Yury. 2000. K tipologii reljacionnyh imen [On the typology of relational nouns] Ms. Russian State University for Humanities.

Link, Godehard. 1983. The logical analysis of plurals and mass terms: a lattice-theoretical approach. In: R.Bauerle et al. (eds.), *Meaning, Use, and Interpretation of Language*: 303-323. De Gruyter. Berlin and New York.

Partee, Barbara. 1989. Binding implicit variables in quantified contexts. In: C. Wiltshire, B. Music and R. Graczyk (eds.) *CLS 25: Papers from the Twenty Fifth Meeting of the Chicago Linguistic Society*: 342-365.

Partee, Barbara. 1999. Weak NP's in HAVE sentences. In J. Gerbrandy et al. (eds.), *JFAK*, [a Liber Amicorum for Johan van Benthem on the occasion of his 50th Birthday], CD-Rom, Amsterdam: University of Amsterdam.

Partee, Barbara, and Mats Rooth. 1983. Generalized conjunction and type ambiguity. In: R. Bauerle, Chr. Schwarze, A. von Stechow, eds. *Meaning, use and interpretation of language*: 361-383. De Gruyter. Berlin and New York.

Rubinstein, Aynat. 2006. Reciprocal verbs as a probe into lexical and compositional semantics. Genitive of negation meeting handout. UMass, Amherst.

Shmelev, Aleksei. 1998. Tipy «nevyrazhennyh valentnostei» [Types of "implicit valencies"]. *Semiotika i informatika* № 36. URSS, Moscow.

Schwarz, Bernard. 2006. Covert reciprocity and Strawson-symmetry. Carlo Cecchetto et al. (eds.) *Snippets*, issue 13, June 2006.

Vikner, Carl and Per Akner Jensen. 2002. A semantic analysis of the English genitive. Interaction of lexical and formal semantics. *Studia Linguistica* 56:191-226.

Von Fintel, Kai. 1999. NPI-licensing, Strawson-Entailment, and context dependency. *Journal of semantics 16*: 97-148.

Winter, Yoad. 2001. *Flexibility principles in Boolean Semantics: the Interpretation of Coordination, Plurality and Scope in Natural Language.* Current studies in linguistics, 37. Cambridge, MA: MIT Press.