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PREDICATION AND EQUATION IN COPULAR SENTENCES: RUSSIAN VS. ENGLISH[*]

> It is a disgrace to the human race that it has chosen to employ the same
> word "is" for these two entirely different ideas (predication and identity)
> – a disgrace which a symbolic logic language of course remedies.
>
> (Russell 1919:172)

1. INTRODUCTION

Copular sentences are a source of embarrassment for syntacticians and semanticists alike. The long standing question concerns their ambiguity: copular sentences may express either identity or predication.

In a predicational sentence like (1), the property expressed by the predicate noun phrase *a teacher* (XP2) is predicated of *Mary* (XP1). The expression *by profession* is added to indicate that sentence (1) in the table below is interpreted as a predicational sentence.

By contrast, equative sentences like (2) assert that the referent of the expression *Mark Twain* and the referent of the expression *Samuel Clemens* are identical. Semantically, both NPs are arguments of type *e*.

Table 1. Three types of copular sentence

types	*examples*	*XP1*	*XP2*
(1) **predicational**	John is a teacher (by profession).	*e*	*<e,t>*
(2) **equative**	Mark Twain is Samuel Clemens.	*e*	*e*
(3) **specificational**	The murderer is John.	?	*e*

Key: the labels XP1, XP2 refer to the actual linear order of the noun phrases at issue – independently of their syntactic category (NP vs. DP), their possible syntactic function (subject vs. predicate nominal), and the semantic type shown in the last two columns.

It has been assumed that the copula in a predicational sentence takes a predicate of type *<e,t>* and applies it to its argument of type *e*, see (1). Given that in an equative sentence, see (2), both noun phrases are arguments of type *e*, they do not match the argument structure of the predicational copula. In addition, equatives express an identity relation that is not available in predicationals. The problem which arises is how the identity relation enters the semantic interpretation in an equative sentence.

In addition to these basic types of copular sentence, some authors assume a further type which is called 'specificational' (see (3)) because it specifies the "value" of the description given in the pre-copular phrase XP1. In our example, the XP *the*

murderer restricts the variable for which the noun phrase *John* specifies a value. In (3), XP2 is clearly referential; the denotational status of XP1, however, is controversial.

These three types of copular sentence raise the following questions:
- What is the basis on which the distinction between predication, identity, and specification rests ?
- What does the copula *be* contribute to each of these interpretations ?
- Are these types of copular sentence interrelated in a way that would suggest that one type, say the predicational, can be considered basic and the other types are to be derived from it ?
- If so, how are equative and specificational sentences to be derived from their predicational source in a compositional way ?

English is a language in which, at least superficially, equative, predicational and specificational copular sentences resemble one another in surface morpho-syntax. Insights into the above questions concerning the ambiguity of English copular sentences can be gained by comparing them with a language which appears to use radically different morpho-syntactic means for expressing predication and equation. We will consider Russian, a language with a rich morphology, but without articles. With respect to copular sentences, Russian displays the following peculiarities:

a) *defective paradigm*: the copula verb *byt'* in modern Russian has no form for present tense, but only a past and a future form[2]
b) *overt equation marker*: equative sentences require the addition of a morpho-logical element, a pronoun, and have a complex syntactic structure
c) *case alternation*: in predicational sentences, post-copular noun phrases (XP2) can occur in the Nominative or in the Instrumental case, as can the initial noun phrase (XP1) in specificational sentences

In what follows, we will examine the Russian equivalents of the three types of copular sentence shown above in Table 1. The main issues we want to tackle are these:

- Is there a common semantic basis from which predication, equation and specification possibly emerge ?
- If so, how could we handle this in a compositional manner in both languages ?

The paper argues for a single underlying semantics of the copula in predicational, equative und specificational sentences. The different types of copular constructions can be accounted for if we assume that non-overt type-shift operations suggested by Partee (1986, 1987) and Chierchia (1984) are at work in semantics. We will argue in favour of the view that – despite being morphologically non-overt – such type-shifting operations can be justified on a structural basis. The way to do this is to examine the Russian counterparts of the three types of copular sentence in Table 1 and exploit the morpho-syntactic distinctions they show to re-analyze the less

transparent English data. We will attempt to find out how these differences can be derived from language specific parameters.

2. PREDICATIONAL SENTENCES

The typical examples of predicational sentences are those shown in (4), i.e. where the post-copular expression describes a property of the subject referent. For example, in (4a) the property of being a teacher by profession is assigned to John. The indicator *by profession* serves as a marker for the predicative status of XP2. Besides predicative noun phrases, APs and PPs can occur in the post-copular position. (4b) presents *being tall* as a characteristic of Nina. In (4c), the subject referent is assigned the property of being located in the garden.

(4) a. John is a teacher by profession.
    b. Nina is tall.
    c. She is in the garden.

In a predicational sentence, the copula serves as a link between the subject term and the predicative. Following Partee (1987), we will assume the following (still incomplete)[3] lexical entry for the predicational copula:

(5) be$_{Pred}$: $\lambda P \lambda x [P(x)]$

According to Partee (1987), the function of the copula is to indicate that the property denoted by its complement *P* holds of its external argument *x*. The *be* of predication selects for a predicative complement of type *<e,t>* but doesn't impose any restrictions on the syntactic nature of it. Different *<e,t>* expressions like NPs, APs and PPs, but under some conditions also DPs, can occur in the complement position of the copula. In this paper we will concentrate on predicational sentences with noun phrases (NPs and DPs).

The predicative use of noun phrases can clearly be distinguished from the referential use by considering the selection of *wh*-pronouns in questions. On standard assumptions, the use of the pronoun *what* instead of *who*, even if ranging over human beings, is a diagnostic for an NP in predicative use. In clear-cut predicational questions like (6), *what* cannot be replaced by *who*, cf. Williams (1983:426).

(6) What/*Who is she by profession ?
     What/*Who is she like ?

(7) What did John become ? A doctor.
     [?]What did John talk to ? A doctor.

Higgins (1973) suggests that even if related to human individuals, *what* asks for a property, hence the answer *a doctor* in (7) is a non-referential noun phrase.

Partee (1987:119) mentions an additional diagnostic for the predicative use of noun phrases, namely occurrence in the complement position of *consider*. The verb *consider* takes *<e,t>*-type complements that are APs or indefinite NPs.

(8)   Mary considers John intelligent / a genius.

As can be seen in (9), definite noun phrases can also occur in the predicative position and hence serve as predicates.

(9)   I consider Chris the best dancer.

Since definites primarily occur in argument positions, the predicative interpretation of definites should be assumed to be derived. The details of such a derivation will be discussed later in this section.

Now, consider predicational sentences in Russian as in (10a/b). Russian does not make the *who/what* distinction with respect to referential vs. predicate noun phrase: the *wh*-pronoun for properties related to humans is always *kto* 'who', see (10b).

(10) a.   Ivan vysokij   / v   sadu   / lučšij tancor.
          Ivan tall$_{Sg.Masc.Nom}$ /in garden/ best   dancer$_{Sg.Masc.Nom}$
          'Ivan is tall/ in the garden / the best dancer.'
     b.   Kto   Ivan po professii ?   Učitel'.
          who$_{Nom}$ Ivan by profession ? A teacher$_{Sg.Masc.Nom}$
          'Who is Ivan by profession ? A teacher.'

Predicate noun phrases can occur in the complement position of *sčitat'* 'consider'.

(11) Maša sčitaet   Ivana intelligentnym/ geniem   / lučšim tancorom.
     Mary considers Ivan   intelligent$_{Ins}$ / genius$_{Ins}$ / best   dancer$_{Ins.}$
     'Mary considers John intelligent / a genius / the best dancer.'

Russian predicational sentences display a peculiarity which distinguishes them from the other types of copular sentence. In Russian, the case of the predicate XP2 can alternate, provided the copula is non-zero, that is, in the past or in the future form. While in copular sentences with a zero copula the predicate NP always occurs in the Nominative, see (10a/b), in those with an overt copula, the predicate NP can occur in the Nominative or in the Instrumental, cf. (12):

(12) Ivan byl xorošim   učitelem   / xorošij učitel'.
     Ivan was [good   teacher]$_{Ins}$ / [good   teacher]$_{Nom}$
     'Ivan was a good teacher.'

This case variation encodes a semantic difference, which can be briefly described in approximately the following way: the predicate occurs in the Instrumental if the situation described is temporally bounded, while the Nominative occurs otherwise.

In this paper we will not go into the details of case variation, for various formal proposals see Geist (1999), Matušansky (2000), Pereltsvaig (2002), and classic literature on this topic by Nichols (1981) and Wierzbicka (1980).

In both English and Russian predicational sentences, XP1 has a referential meaning, whereas XP2 is clearly non-referential, i.e. an *<e,t>*-type. Although we will analyze properties intentionally, we will (mis)represent them as type *<e,t>* for ease of exposition.

At this point I would like to briefly introduce some assumptions about the syntax and semantics of noun phrases, which will be important for the analysis I advocate. I follow Partee (1987) in assuming that noun phrases can have intepretations of different types. In copular sentences we will consider at least two interpretations of noun phrases: an *e*-type and an *<e,t>*-type interpretation.[4] The *<e,t>*-type is the semantic type of predicate noun phrases. A predicate NP as in (13a) is semantically represented as a one-place predicate with an unsaturated referential argument *x* as in (13b).

(13) a.   a teacher / učitel'
      b.   [$_{NP}$ a teacher / učitel']: λx [TEACHER(x)]$_{<e,t>}$

An NP with such a denotation can occur in the predicate position in a copular sentence.

While the referential argument *x* of a predicate noun phrase remains unbound, the referential argument of a referentially-used noun phrase like *the president of the club* in *The president of the club came in* is bound. For the binding of the referential argument we will make use of the *iota*-operator as suggested in Partee (1987:117). I follow Zamparelli (2000) in assuming that this operator is the semantic instantiation of some functional head. Following Abney (1987) I will call this functional head D and the maximal projection DP.

(14) a.   the president of the club
      b.   [$_{DP}$ [$_D$ the [$_{NP}$ president of the club]]]$_e$: ιx [PRESIDENT-OF-CLUB(x)]

In English, the functional head D can be identified by a strong determiner, cf. Langobardi (1994) and Zamparelli (2000) among others. According to Zamparelli, determiners in predicate noun phrases like *a* in *He is a teacher* are weak, that is they cannot bind the referential argument of the NP, but rather behave like adjectives, and are thus not located in D. In general, determiners can be assumed to be ambiguous since they can be interpreted in D or within the NP.

In a nutshell, I assume that only referential NPs are DPs. The functional head D contains a binding operator for the referential argument of the embedded NP. The referential binding causes the referential interpretation of the embedded NP. Proper names and pronouns, which are inherently referential, are entities of the DP-level.[5]

(15) a.   Mary
      b.   [$_{DP}$ mary]$_e$: **mary**

Again, we assume not only a semantic but also a syntactic difference between referentially and predicatively used noun phrases. The semantic interpretation of a noun phrase is reflected in its syntactic structure.

Returning to Russian, Russian is a language without articles and hence there is no syntactic need to assume the DP layer. But because of the strong correspondence between syntactic and semantic categories assumed in this paper, the DP layer as a layer for referentially used noun phrases can be assumed in Russian for semantic reasons (cf. Steube & Spaeth 1998, but see Zlatic 1997 for a different analysis for noun phrases in another articleless language, Serbian). Since Russian is a language lacking articles, the operator in D has no overt counterpart, i.e. D remains syntactically empty.

(16) $[_{DP} [_D \varnothing [_{NP} \text{prezident kluba}]]]_e$: ιx [PRESIDENT-OF-CLUB(x)]

As we have seen above, definite descriptions can occur in the complement position of *consider/sčitat'* and hence can be interpreted as denoting a property. Additionally, the question test in English in (17a/b) shows that the definite description *the president of the club* can correspond both to the interrogative pronoun *who* and to the interrogative pronoun *what* in questions. In the answer to a question with *who*, the definite DP is interpreted as denoting an individual, while in the answer to a question with *what*, it is interpreted as denoting a property.

(17) a. *Who* is John ?   John is *the president of the club*.
     b. *What* is John ?   John is *the president of the club*.

Depending on the interpretation of the DP *the president of the club*, the copular sentence has a predicational or an equative reading. To account for the predicative use of definite DPs in predicational sentences, we follow Partee (1987) in using the operator *ident* defined in (18).

(18) *ident*: $\lambda y \, \lambda x \, [y = x]$ or equivalently[6] $\lambda y \, \lambda x \, [x = y]$

This operator maps any element *y* onto the property of being identical to *y*. The application of *ident* to the definite description *prezident kluba / the president of the club* yields the representation in (19).

(19) $[_{predDP} \text{prezident kluba / the president of the club}]$:
     $\lambda x \, [\iota y \, [\text{PRESIDENT-OF-CLUB}(y)] = x]$

The shifted DP denotes the property of being identical to the president of the club.

Theoretically, predicates can be created by the *ident*-operator from all *e*-type expressions, even from deictically used personal pronouns. However, such pronouns cannot occur in the predicative complement position of *consider* either in English or in Russian.

(20) a.   *I consider Mary her / she.

     b.   *Ja sčitala   Mašu   ej.
          I   considered Mary$_{AKK}$ she$_{Ins.}$

They are also excluded in the predicative position of predicational sentences. To force the predicational interpretation of a copular sentence, we use a predicational question with *what* to ask for a property. As can be seen in (21), the copular sentence with a deictically used personal pronoun in the predicative position is not an appropriate answer to such a question:

(21) *What* is Mary ? #Mary is *her / she*.

Personal pronouns like *he* or *she* specify their referents immediately by pointing at them. As Mikkelsen (2003:166ff.) points out, pronouns lack descriptive content. This characteristic of pronouns seems to prevent them from occuring in predicative positions. In contrast, definite descriptions, which can be used as denoting properties like *the president of the club*, introduce their referent via their descriptive content, which restricts their denotation.

     Having presented our main assumptions concerning the internal structure of noun phrases, we return to the structure of predicational sentences. To illustrate how the derivation works, we consider a predicational sentence, (22a) with the underspecified syntactic structure in (22b) and the semantics of syntactic constituents in (22c).

(22)   a.   John is a teacher.
       b.   [$_S$ [$_{DP}$John]   [is   [$_{NP}$ a teacher]]]
                    ↓   ↓   ↓
       c.   (**john**) $\lambda P \lambda x [P(x)]$ $\lambda y [\text{TEACHER}(y)]$

Combining the predicate NP *a teacher* with the copula, we get the expression in (23a), which denotes the property of being a teacher. (23b) is derived by replacing the variable *x* with the subject argument **john** via lambda conversion.

(23)   a.   [is a teacher]: $[\lambda P \lambda x [P(x)]] (\lambda y [\text{TEACHER}(y)])$
               $\equiv \lambda x [\text{TEACHER}(x)]$
       b.   [$_S$ John is a teacher]: $[\lambda x [\text{TEACHER}(x)]] (\textbf{john}) \equiv [\text{TEACHER}(\textbf{john})]$

The result corresponds to the paraphrase: "John has the property of being a teacher". We now turn to an examination of equative sentences.

3. EQUATIVE SENTENCES

3.1. Equatives in English

Equative sentences as in (24a) resemble predicational sentences as in (24b) in consisting of two noun phrases and the copula verb. But the similarity between predicational and equative sentences is merely superficial.[7]

(24) a. Cicero is Tully.
   b. Cicero is an orator and philosopher.

The interpretation of the equative sentence differs radically from that of the predicational sentence. While the predicational sentence in (24b) ascribes the property to the referent of XP1, the equative sentence (24a) asserts that XP1 and XP2 have the same referent. There is much controversy in the syntactic and semantic literature about how to account for the fact that copular sentences with the same verb *be* can render both the predication and the identity relation. The main question is how the identity relation enters the semantic interpretation in equative sentences. At least two ways of dealing with this problem have been discussed in the literature.

One possibility is to trace back the distinction *predication* vs. *identity* to the copula verb itself, as Higgins (1973), Sharvit (1999), and Schlenker (1998, 2001) do, following the philosophical tradition since Frege and Russell. They posit two verbs *be*, a "*be* of identity" and a distinct "*be* of predication". While the *be* of predication, selects a predicative complement *<e,t>* and an argumental *e*, the *be* of identity takes two arguments of type *e*, and, hence, has a different argument structure, see (25a). After instantiating the variable x by *Tully* in (25b) and y by *Cicero* in (25c), we get the resulting Semantic or Logical Form shown in (25d).

(25) a. $be_{Ident} : \lambda x\, \lambda y\, [y = x]$[8]
   b. [is Tully]: $[\lambda x\, \lambda y\, [y = x]]\,(\mathbf{tully}) \equiv \lambda y\, [y = \mathbf{tully}]$
   c. $[_S$ Cicero is Tully]: $[\lambda y\, [y = tully]]\,(\mathbf{cicero})$
   d. $\equiv [\mathbf{cicero} = \mathbf{tully}]$

Another possibility is to locate the source of the ambiguity in the arguments. Williams (1983) and Partee (1986, 1998) offer such an alternative account by assuming a single *be* of predication plus some type-shifting operations on arguments. To account for equative sentences with two *e*-type noun phrases, Partee uses the operator *ident*, which shifts the type of the post-copular referential DP to the corresponding predicative reading, see (26a) in our notation. Applied to *Tully* in (26b), *ident* converts it into the property of being (identical to) *Tully*. Note that the *ident* operation locates the identity relation in the type-shifted meaning of XP2, not in the copula; this is what allows us to dispense with a separate *be* of identity.

(26) a.   *ident*: $\lambda x\ \lambda y\ [y = x]$
     b.   *ident* (**tully**): $\lambda y\ [y = \textbf{tully}]$

The predicational copula in (27a) can take the predicate (26b) as its complement. The derivation of the sentence S is given in (27b/c).

(27) a be_{Pred}: $\lambda P\ \lambda x\ [P(x)]$
     b.   [is Tully]: $[\lambda P\ \lambda x\ [P(x)]]\ (\lambda y\ [y = \textbf{tully}])$
          $\equiv x\ [\textbf{tully} = x]$
     c. $[_S$ Cicero is Tully]: $[\lambda y\ [y = \textbf{tully}]]\ (\textbf{cicero})$
          $\equiv\ \textbf{cicero} = \textbf{tully}$

The *ident* type-shift allows identity sentences to be semantically interpreted as predicational. This analysis has the desirable result of avoiding an ambiguity with respect to the copula verb. However, as Partee herself notes, one would like to have further evidence for such an analysis. In English equative sentences, there is no explicit counterpart of the *ident*-operator and hence no independent evidence showing that XP2 is a predicate and not an argument. In other words: we cannot confirm the assumption that the identity relation enters the semantic interpretation of the sentence *Cicero is Tully* via the nominal complement and not via the copula verb.

    The analysis in (27) suggests that XP2 is used as a predicate. If this is correct, we expect the shifted noun phrase (*ident* (**tully**)) to be allowed in predicational small clauses governed by the verb *consider*. However, *Tully* is in fact barred from this position, whereas a true predicative NP like *a talented politician* is allowed (cf. Rothstein 2001:245 for a similar observation):

(28) a.   *They considered Cicero Tully.
     b.   They considered Cicero a talented politician.

Obviously, the ungrammaticality of (28a) is due to the fact that XP2 – *Tully* – by its very nature as a proper name cannot serve as a predicate. However, given the analysis in (27), it should be convertible to a predicate but – as (28a) shows – it is not, at least in certain cases. Rothstein (2001:237) notes that the insertion of the copula in the small clause in sentences like (28a) improves their acceptability.

(29) They considered Cicero to be Tully.

If the *ident*-operator were to apply to the referential XP2 and convert it into a predicate, a predicational small clause would emerge. In predicational small clauses the copula makes no semantic contribution to the sentence and it can be omitted as was shown above. Given that, it is not clear why the copula cannot be omitted in (29). From this we may conclude that the analysis suggested in (27) is in need of some sort of adjustment. In order to overcome the flaws of this analysis while maintaining its advantage of assuming only one copula, we suggest having the *ident*

operator apply not to XP2 but to the copula verb. The idea is this: we combine the formula for *ident* in (30a) and be_{Pred} in (30b) via Functional Composition, yielding (30c).

(30) a. *ident*: $\lambda u\ \lambda y\ [y = u]$

b. be_{Pred}: $\lambda P\ \lambda x\ [P(x)]$

c. be_{Ident}: $[\lambda P\ \lambda x\ [P(x)]]\ o\ [\lambda u\ \lambda y\ [y = u]]$
$\equiv \lambda u\ [\lambda P\ \lambda x\ [P(x)]\ \ (\lambda y\ [y = u])]$
$\equiv \lambda u\ \ [\lambda x\ [\ \lambda y\ [y = u]\ (x)]]$
$\equiv \lambda u\ \lambda x\ [x = u]$

The shifted copula is the copula of identity. The semantic derivation of the whole sentence proceeds in the same way as the derivation shown in (25). The advantage of the type-shift analysis suggested in (30) over the "two copula account" is that we still have only one predicational copula in the lexicon from which we can derive the "*be* of identity", which is a desirable result.

3.2. Equatives in Russian

In Russian, equative sentences differ from predicational sentences syntactically. They require the occurrence of a constant form of the demonstrative pronoun *èto* 'this$_{Sg.Neut}$'. In predicational sentences, however, *èto* is excluded, cf.

(31) Mark Twain – *(èto) Samuel Clemens.   (equative)
Mark T.$_{-Nom}$ this   Samuel C.$_{-Nom}$
'Mark Twain is Samuel Clemens.'

(32) Mark Twain (– *èto) pisatel' po professii.   (predicational)
Mark T.   this   writer$_{Nom}$ by profession
'Mark Twain is a writer by profession.'

The demonstrative pronoun seems to be needed to express that the two noun phrases have the same referent. Another difference between predicationals and equatives in Russian is the following: in equative sentences, there is no case alternation, XP2 occurs in the Nominative only. In order to warrant that XP2 in the Instrumental is excluded from *èto*-sentences (and not because of lacking an overt copula), we have to use an overt form of the *byt'* copula.

(33) a. Ciceron – èto   byl   Tullij.
Cicero$_{Nom}$ this$_{Neut}$ was$_{Masc}$ Tully$_{Nom}$

b. *Ciceron – èto   byl   Tulliem.
Cicero$_{Nom}$ this$_{Neut}$ was$_{Masc}$ Tully$_{Ins}$

There is strong evidence that in (33), XP2 is the underlying subject: the copula agrees with XP2 and not with *èto*, which remains Singular Neuter Nominative.

Now, what does *ėto* contribute to the syntax and semantics of the equative sentence ? Why is it obligatory ?

Błaszczak & Geist (2000a/b) have shown that *ėto*-sentences are not simplex sentences like predicationals but, rather, they exhibit a cleft-like structure. They consist of two parts, see (34) below, the *ėto*-clause and the dislocated XP1. XP1 is separated from *ėto*-clause by an intonation break, indicated by the dash in (34).

(34) [$_S$ [$_{DP}$ XP1] − [$_{IP}$ *ėto* cop XP2]]

We adopt the view suggested by Junghanns (1997) that demontrative *ėto* has the status of a base-generated internal topic. The pronoun *ėto* connects XP1, which serves as an external topic, with the clause. The semantic relation holding between XP1 and *ėto* will be discussed below.

Syntactically, *ėto*-sentences are similar to left dislocations. However, in contrast to typical left dislocation constructions, the dislocated noun phrase in Russian equatives is resumed not by a personal pronoun but by an uninflected demonstrative. The demonstrative pronoun *ėto* 'this' in equative sentences has a constant morphological form independent of Gender and Number of the dislocated XP1, i.e. *ėto* remains uninflected. As can be shown in (35) the uninflected *ėto* cannot be used to pick out a human referent of the dislocated DP, only the inflected form of *ėto* (*ėti* 'this$_{Pl}$') can, but it sounds archaic. Personal pronouns are more common as resumptives in left dislocation constructions in Russian.

(35) Devočki, oni   / *ėto   / ėti   obyčno lučše učatsja čem mal'čiki.
    girls   they$_{Pers.3.Pl}$/ this $_{Dem.Sg.Neut}$ /this$_{Dem.Pl}$ usually better learn   than boys.
    'Girls are usually better in school than boys.'

To account for the fact that the inflected *ėto* can be used as an anaphor for referential DPs we assume that the inflected *ėto* is itself a DP and can be semantically represented as an *e*-type variable x_i restricted to range over human and non-human individuals, cf. (36).[9] The anaphoric relation of *ėto* to some antecedent-DP is indicated via indexation.

(36) [$_{DP}$ėto$_i$]: x_i (type *e*)

However, in equative sentences, another type of *ėto*, the uninflected *ėto*, is used. Since the uninflected *ėto* cannot trigger the agreement of the copula and does not agree with the dislocated DP in Gender and Number, we assume that it is predicative. We can predicativize *ėto* by means of the operator *ident* as is illustrated in (37a). The result is a predicate expression of type <*e,t*>, cf. (37b):

(37) a.   *ident* (x_i) = λy [x_i = y]
    b.   [$_{predDP}$ėto$_i$]: λy [x_i = y]   (type <*e,t*>)

As is shown in (37b) the predicate *èto* is not just semantically but also syntactically more complex than the argument *èto*. Syntactically, the argument *èto* corresponds to a DP, whereas the predicate *èto* to a predDP. The head of predDP contains the *ident*-operator. We now have all the ingredients to derive an equative sentence. We begin with the IP in (38a). The semantics of the constituents is given in (38b).

(38) a. Èto Tullij.
      b. $[_{IP} [_{predDP}\text{èto}_i]$ $[\varnothing\text{cop}$ $[_{DP} \text{Tullij }]]]$
              $\downarrow$ $\downarrow$ $\downarrow$
          $\lambda y [x_i = y]$ $\lambda y \lambda P [P(y)]$ **(tully)**

We follow Williams (1983) and Partee (1986) in assuming that the external argument and the complement of the copula can occur in either order: the argument can precede or follow the predicate. In *èto*-sentences, the predicate *èto* precedes the argument-DP. The predicational copula applies the pronominal predicate *èto* to the individual **tully** denoted by *Tullij*. The compositional result for the *èto*-clause is the representation in (39):

(39) $[_{IP}$ Èto Tullij]: $[x_i = $ **tully**$]$ (type *t*)

The interpretation of (39) can be paraphrased as "some individual *x* is identical to Tully". In order to interpret the sentence, the variable *x* has to be identified via the co-indexing-relation with its antecedent, the DP Cicero, cf. (40).

(40) Ciceron   –   èto Tullij
          $\downarrow$ $\downarrow$
      cicero$_i$ $x_i = $ **tully**

Due to co-indexing, the individual variable *x* takes the constant **cicero** as its value. If we instantiate the predicate variable *x* by **cicero** we get [**cicero** = **tully**] which is logically equivalent to the representation we derived in (27c) for the corresponding equative sentence in English.

To summarize: our analysis suggests that equative sentences in Russian are syntactically but also semantically more complex than hitherto assumed. Equation in Russian is mediated by inverted predication, employing the pronominal predicate *èto*. Comparing equatives in Russian and English, we notice that the identity relation enters the semantic interpretation at different places: in English, it is the copula which is shifted via *ident*; in Russian equatives, the operator *ident* is applied to the demonstrative pronoun *èto*.

The following question arises: what is the reason for such a different syntax-semantics mapping for equation in English and Russian. Why does Russian employ an additional pronominal element to convey equative semantics ? Why does English differ from Russian in this respect ?

The situation we face is this: in Russian, the copula verb *byt'* lacks an overt present form which – in a way to be explored in a separate study – somehow

prevents type-shifting operations from applying. But a type-shift is needed to form a predication structure from two unrelated referential DPs, here: *Cicero* and *Tully*. This need for the type-shift seems to be the reason for the use of the additional pronominal item in Russian equatives. The pronoun forms a predicate that relates the two DPs. In English, an overt copula is available in all tenses, so there is no obstacle preventing application of the type-shifting operator.[10]

The use of pronouns in equative sentences seems to be a widespread phenomenon among the languages of the world. A situation similar to that in Russian obtains in Polish where the demonstrative pronoun *to* is used. But languages which are genetically not related to Russian, such as Scottish Gaelic (Adger & Ramchand 2001), Standard Arabic and Modern Hebrew also employ a pronoun in equative sentences. Unlike Russian, these languages employ a personal and not a demonstrative pronoun, cf. an example from Modern Hebrew:

(41) dani *(hu)   mar yosef. (Rothstein 2001:207)
      dani $Pron_{Masc.Sg}$ mr   yosef
      Dani is Mr Yosef.

As argued by Rothstein (2001), the personal pronoun *hu* is necessary to trigger the type-shift of a DP to allow equative sentences to be formed. Interestingly, in Modern Hebrew, the copula stem lacks a present form, as in Russian. However, the pronominal elements in Russian and Hebrew differ in distribution and categorial status and hence cannot be treated in exactly the same way.

In the next section, we will examine specificational copular sentences, for short: specificationals.

4. SPECIFICATIONALS

In this section we will focus on sentences like (42):

(42) a.   The president of the club is John.
      b.   The murderer was Raskolnikov.
      c.   My teacher is Mary.

Such copular sentences were called *specificational* by Higgins (1973) because, intuitively, XP2 specifies the "value" of the description given by XP1. In our example (42a), *the president of the club* (=XP1) restricts the variable for which XP2 specifies the referent of *John* as a value.

One of the peculiar aspects of specificational sentences that has been pointed out by many people is their fixed focus-background structure (cf. Heycock & Kroch 2001:148). Specificational sentences invariably come with a focused post-copular DP (=XP2) and an XP1 which provides the background, and hence cannot be stressed.[11]

In specificational sentences like those in (42), XP2 is clearly referential. However, the denotational status of XP1 is controversial. In some accounts, XP1 is

analyzed as a predicative NP and the sentence is considered an inverse predicational sentence (e.g. Heggie 1988). If XP1 is analyzed as referential, then the sentence can be classed as equative, as assumed by Heycock and Kroch (1999). Partee (1998) observes that cross-linguistically, both possibilities are available.

In Italian, as noted by Moro (1997:28), specificationals display a different agreement pattern from English. This can be seen when XP1 and XP2 do not match in Number. In English, the copula invariably agrees with XP1 in both predicational and specificational sentences, see (43). In Italian, however, in predicationals the copula agrees with XP1, while in specificationals, it agrees with XP2, cf. (44). Syntactically, XP2 can thus be assumed to be the subject, and XP1 to be the predicate.

(43) English
   a.   The pictures of the wall *was / were the cause of the riot.
   b.   The cause   of the riot   was / *were the pictures of the wall

(44) Italian
   a.   Le foto   muro   *fu / furono la causa della rivolta
        the pictures of the wall was / were   the cause of the riot
   b.   La causa della rivolta *fu / furono le foto   del   muro
        the cuase of the riot   was / were   the pictures of the wall

The inverted agreement pattern can be regarded as strong evidence for a predicate fronting analysis in Italian. In English, instead, XP1 is the syntactic subject of specificational sentences and hence is not a predicate. Thus, Heycock & Kroch (1998, 1999) argue for subsuming English specificationals under equatives.

If the analyses of specificationals as (inverted) predicational in Italian and as equative in English are correct, the problem that arises is that the meaning of "specification" is expressed in different languages by different semantic structures: in one language "specification" gives rise to the semantics of (inverse) predication, and in another language to the semantics of equation. This is an unexpected and undesirable consequence, which we want to overcome, if possible.

In what follows, we will derive the invariable semantics of specificational sentences based on Russian examples and then compare the syntax-semantics mapping in Russian and English. We will show how language specific differences in the syntax-semantics mapping can be traced back to independently attested differences between the two languages.

4.1. Specificational sentences in Russian

Consider the following specificational sentences:

(45) a.   Ubijca   staruxi   – (*èto) Raskol'nikov.
           murderer$_{Nom}$ of-old-lady   this Raskolnikov
           'The murderer of the old lady is Raskolnikov.'

    b.   Pričinoj   avarii   *byla   /byli   neispravnye tormoza.
          reason$_{Sg. Fem.Ins}$ of-accident was$_{Sg.Fem}$/were$_{Pl}$ broken   brakes$_{Pl}$
          'The reason for the accident was broken brakes.'

    c.   Edinstvennyj,   kto stal na našu storonu, *byl /byla Varvara
          only-person$_{Masc.Nom}$ who came to our side was$_{Fem}$/was$_{Masc}$ Barbara$_{Fem}$
          'The only person who defended us was Barbara.'

                                    (Padučeva & Uspenskij 1997:178)

To characterize these sentences, we will compare them with equative and predicational sentences, which we introduced in the previous sections.

1) Comparing the specificational sentence in (45a) with equatives, we observe that the predicate proform *èto* is excluded in the specificational sentence. This fact suggests very strongly that, at least syntactically, Russian specificationals do not belong to the equative type, and therefore XP1 and XP2 cannot both be referential.

2) As (45) shows, XP1 can occur in the Nominative or in the Instrumental. Since the case alternation Nominative vs. Instrumental is only possible with predicative noun phrases, the case alternation on XP1 can be seen as a crucial argument in favour of assigning it predicate status (cf. Padučeva & Uspenskij 1997, Partee 1998). In contrast to predicationals, the predicate noun phrase is in the initial position in specificationals.

3) Concerning the agreement marking of the copula, Russian, as shown in (45b/c), patterns with Italian; that is, it displays an inverted agreement pattern, hence XP2 serves as the syntactic subject.

4) Personal pronouns cannot occur in the initial position of specificational sentences or, more precisely, if such a pronoun is placed in the initial position of a copular sentence with a proper name occurring in the post-copular position, the sentence is interpreted as an equative and, in Russian, the pronoun *èto* has to be inserted.

    (46) My – *(èto) Marija i   Ivan.
           we   this   Maria and Ivan
           'We are Mary and Ivan.'

The inability of personal pronouns to occur as XP1 in specificational sentences can be considered to be a direct consequence of their inability to occur in the predicative position (cf. section 2).

From these observations we can conclude that specificationals are related to predicationals and can be syntactically analyzed as predicate inversions. However, a frequent objection to the analysis of specificationals as inverted predicationals in other languages is that not all predicate expressions occurring in the predicative position in predicational sentences can also occur in the initial position of specifi-

cational sentences (Heycock & Kroch 1999:379). Although predicate expressions like APs and NPs can occur in predicational sentences in Russian, they are excluded from the initial position of specificationals. Only descriptions like *prezident kluba* 'the president of the club' and *ubijca* 'the murderer' in (43c/d) are felicitous in both sentence types:

(47) a.   *predicational*   *specificational*
         Ivan – dobryj.   #Dobryj   Ivan.[12]
         Ivan   good-natured   good-natured Ivan
         'Good-natured is Ivan.'   'Ivan is good-natured.'

      b.   Ivan byl učitelem po professii.   #Učitel' po professii − Ivan.
          Ivan was teacher   by profession.   teacher by profession Ivan
          'Ivan was a teacher by profession.'   'A teacher by profession is Ivan.'

      c.   Ivan byl prezidentom kluba.   Prezidentom kluba byl Ivan.
          Ivan was president$_{Ins}$ club$_{Gen}$ President$_{Ins}$ club$_{Gen}$ was Ivan
          'Ivan was the president of the club.' 'The president of the club was I.'

      d.   Raskol'nikov byl ubijcej.   Ubijcej   byl Raskol'nikov.
          Raskolnikov   was the-murderer   the-murderer was Raskolnikov
          'Raskolnikov is the murderer.'   'The murderer is Raskolnikov.'

I will call predicates that can only occur in predicational sentences 'core predicates', since predicate interpretation is the most natural interpretation for such expressions. If specificational sentences are inverted predicational sentences, it is not clear why core predicates are excluded in specificationals.

     I think that the prohibition against the occurrence of core predicates in the initial position in specificational sentences is due to information structure, more precisely, due to one dimension of it – the so called topic-comment-structure.[13] The topic is defined as the entity which the predication is pragmatically about (Reinhart 1982, Molnár 1991:41-43, 1993, among others). At least in Russian and English, the topic is normally associated with the sentence initial position. The part of the sentence without the topic is the comment.

     Now, consider the topic-comment-structure in predicational sentences in comparison to specificational sentences. The predicational sentence (48a) is about Raskol'nikov, hence this expression is the topic. The specificational sentence (48b) is about the murderer or more correctly, about somebody who is the murderer, hence *ubica* 'the murderer' serves as topic.

(48) a.   Raskol'nikov – ubijca.
          'Raskolnikov is the murderer'

      b.   Ubijca   – Raskol'nikov.
          'The murderer is Raskolnikov.'

To verify our intuitive hypothesis concerning the topics in the above sentences, we use a topic-marking construction introduced by *čto kasaetsja X* 'as for X' (cf. Reinhart 1982:10, among others):

(49) a. Čto   kasaetsja Raskol'nikova, ja dumaju, čto on ubijca.
      what concerns Raskolnikov   I think   that he murderer
      'As for Raskolnikov, I think that he is the murderer.'

   b. Čto   kasaetsja ubijcy,   ja dumaju, čto ėto Raskol'nikov.
      what concerns murderer$_{Akk}$ I think   that it Raskolnikov
      'As for the murderer, I think that it is Raskolnikov.'

Native speakers agree that (49a) is a paraphrase of (48a) and not of (48b), whereas (49b) is a paraphrase of (48b) and not of (48a). According to this test, in the predicational sentence (48a) the topic is *Raskolnikov*, in the specificational sentence (48b) the topic is *ubijca*.

Interestingly, core predicates like *učitel' po professii* 'teacher by profession' cannot occur at all in this topic-marking construction, as is shown in (50).

(50) #Čto kasaetsja učitelja   po professii,   ja dumaju čto ėto Ivan.
     what concerns teacher$_{Akk}$ by profession, I think   that it Ivan
     'As for a teacher by profession, I think that it is Ivan.'

This suggests that the choice of a noun phrase as the topic expression of a given sentence is sensitive to the semantic properties of this noun phrase. The crucial factor for the infelicity of (50) seems to be that the NP following *čto kasaetsja* cannot be interpreted as being referential or as presupposing a referent. The observation that topics are sensitive to existential presupposition is not new, it goes back to Strawson (1964) who states that topic noun phrase expressions carry existential presuppositions. Reinhart (1982:11) makes similar assumptions. She proposes that a noun phrase can be interpreted as topic only if it is referential. Existential presupposition or referentiality can be considered a topichood condition for noun phrases. Now we have to check if the topics in the predicational and specificational sentences in (48) satisfy this topichood condition.

   In the predicational sentence (48a) the topic *Raskolnikov* is referential and hence satisfies the topichood requirement proposed by Reinhart. In the specificational sentence (48b), we analyze *the murderer* as an expression of type *e* shifted to a predicate via the *ident*-operator. In the predicational sentence (48a) the topic *Raskolnikov* is referential and hence satisfies the topichood requirement proposed by Reinhart. In the specificational sentence (48b), we analyze *the murderer* as an expression of type *e* shifted to a predicate via the *ident*-operator. The logical form of such a predicate DP can be represented analogously to the predicate DP *prezident kluba / the president of the club*, which was analyzed in section 2, as shown here in (51):

(51) $[_{predDP}$ ubijca]: $\lambda x [\iota y [\text{MURDERER}(y)] = x]$

This is the property-type denotation for a noun phrase based on its *e*-type denotation. The predDP presupposes the existence of an individual fitting the descriptive content of the DP. Such a predDP fulfils the topic requirement assumed by Strawson.

Core predicate expressions like *učitel' po professii* 'a teacher by profession', and *dobryj* 'good-natured', are predicates without (existentially presupposed) referents, they do not fulfil the topic requirement and as a consequence they cannot occur in specificational sentences. However, there is no topic requirement on the predicative position of a predicational copular sentences, that is why core predicate expressions are felicitous in this position.

What is important in my analysis is that it is not the copula itself that restricts the realization of the predicative complement in specificational sentences. The copula takes a predicate of type $<e,t>$ as complement in both predicational and specificational sentences, and does not impose any restrictions on the syntactic or semantic nature of this complement. The restriction on the realization of the predicate complement in specificational sentences comes from the pragmatics. In a nutshell, assuming that XP1 in Russian specificationals is a topic, we can explain why core predicate expressions like APs and NPs as in (47a/b) are barred from initial position in specificationals.

We are now in a position to analyze the specificational sentence (52a). Since in this paper we concentrate on the semantic structure of copular sentences, for the sake of simplicity we use underspecified syntactic structures, leaving out indicators of movement and/or traces. According to our discussion of examples (45), in specificational sentences in Russian, XP2 is the syntactic subject and XP1 is a predicate of a special sort. The semantics of syntactic constituents is given in (52c).

(52)   a.   Ubijca – Raskol'nikov
       b. $[_S [_{predDP}$ ubijca$]_{<e,t>}$ $[\varnothing$cop $[_{DP}$ Raskol'nikov$]_e$]]
                          $\downarrow$ $\downarrow$ $\downarrow$
       c. $\lambda x [\iota y [\text{MURDERER}(y)] = x]$ $\lambda x \lambda P [P(x)]$ (**rask**)

The copula simply "instructs" us to predicate its $<e,t>$ argument of its *e*-type argument. In this case, the combination of the subject DP with the copula yields (53a). Having instantiated the predicate variable *P* we get (53b).

(53)   a. $[\varnothing$cop   Raskol'nikov]: $\lambda P [P(\textbf{rask})]$
             "the property that holds of Raskolnikov"
       b. $[_S$ ubijca $\varnothing$cop   Raskol'nikov]: $\iota y [\text{MURDERER}(y)] = \textbf{rask}$

The result shown in (53b) can be paraphrased as "the property of being the murderer holds of Raskolnikov". This result suggests that specificationals in a way combine features of both equative and predicational sentences.

4.2. Some speculations on specificational sentences in English

Heycock & Kroch (1999) argue that English specificationals have to be treated as equatives. Under such an analysis, the mapping between syntax and semantics could be schematically represented as in (54): both NPs are referential, and the copula maintains the identity relation.

(54) a.   The murderer   was   Raskolnikov.
               ↓   ↓   ↓
     b. ιx [MURDERER(x)]   =   **rask**

Heycock & Kroch (1999) show evidence in favour of XP1 being referential. Both noun phrases in specificational sentences may be modified by non-restrictive relative clauses as shown in (55).

(55) The duty nurse, who is very efficient, is Rina, who I am very fond of.
<div align="right">(Heycock & Kroch 1999:374)</div>

Such data point to the referential status of XP1 in specificational sentences and provide an argument in favour of the analysis of specificational sentences as equative. However, the analysis of specificational sentences as equatives faces a problem. As Mikkelsen (2002b, 2003) notes, the interpretation of XP1 in specificationals differs from the interpretation of XP1 in equatives. The difference becomes obvious in a pronominalization test using tags suggested by Mikkelsen. It is well-known that the pronoun in the tag is always anaphorically related to the subject of the clause. In the equative sentence (56a), the personal pronoun *he* can refer back to the subject *Samuel Clemens*. But in the tag of the specificational sentence in (56b), the Singular Neuter *it* has to be used instead.

(56) a.   Samuel Clemens is Mark Twain, isn't he/*it ?
     b.   The murderer of the old lady is Raskolnikov, isn't *he/it ?

If specificationals were equatives, the failure of the personal pronoun in (56b) to pick out the referent of XP1 would be unexpected.

Note that *it* in subject position of the tag governs agreement of the verb, hence *it* cannot be a predicate of type *<e,t>*. Since the semantic type of an anaphor must match that of its antecedent, the antecedent of *it*, here *the murderer*, cannot be an *<e,t>*-predicate either. In addition, the agreement facts in specificationals in (43) where the copula invariably agrees with the XP1 also suggest that XP1 is the syntactic subject and hence has argumental status.

The referential status of *it* and its antecedent *the murderer* in (56b) can be accounted for straightforwardly by the approach suggested by Chierchia (1984). *It* can be anaphorically related to entities that are analyzed as "nominalized properties" in the sense of Chierchia. Compare the following sentences:

(57) a. Blue is a nice colour, isn't it ?
     b. To be home is nice, isn't it ?

The antecedent of *it* in these examples is a nominalized AP and an infinitival VP respectively. They serve as subjects of predication and hence are arguments, just as their anaphor *it* in the tag is. Chierchia (1984) proposes to analyze property expressions with argumental status as entities of a special type; that is, as "nominalized properties". Although Chierchia suggests the symbol π for representing the semantic type of primitive properties, we will (mis)represent "nominalized properties" here as entities of type *e* for simplicity.

Chierchia assumes two operators: *nom* for nominalization and *pred* for predicativization, respectively, see (58). The operator *nom* maps *<e,t>*-type properties onto their entity-correlates of type *e*. This is the operation which, in Chierchia's analysis, is involved in nominalization, e.g. for conversion of the property denoted by the adjective *blue* in *The coat is blue* into the "nominalized property" as denoted by the common noun *blue* in (57a). The operator *pred* applies to an entity which is the entity-correlate of a property, such as the infinitive in (57b), thus making it into a corresponding property as in *John is home* as suggested by Chierchia. The operators *nom* and *pred* are inverse to each other.

(58) *nom* (P): $^{\cap}$P   (type *e*)
      pred (x): $^{\cup}$x   (type *<e,t>*)

We will now make use of *pred* for the analysis of XP1 in English specificational sentences. We assume that the semantic representation of *it* in (57) is a designated variable x_i of type *e* which is restricted to range over entity-correlates of properties.

To derive a specificational sentence such as (56b) *The murderer is Raskolnikov* compositionally, we will start with the sentence *It is Raskolnikov*, where the subject XP1 is pronominalized. First, we have to specify the semantics of the copula. The copula in such a sentence has to combine two arguments of type *e*: a nominalized property and an individual. To adjust the predicational copula, which always takes an *<e,t>* predicate and an *e* argument, we have to change its argument structure. The copula of specification must have the argument structure as represented in (59).

(59) be_{Spec}: $\lambda z\ \lambda y\ [^{\cup}z\ (y)]$
      (where z ranges over entity-correlates of properties, and *y* over individuals)

The specificational copula can be derived from the predicational one by additional operations. The predicational copula can be combined with a type-shifter, as in (60a), that transforms the property *P* in the argument structure of the copula into a nominalized property. The Functional Composition of the two functions in (60b) yields the representation for the copula.

(60) a. type-shifter: $\lambda z\ [^{\cup}z]$
     b. $\lambda P\ \lambda y\ [P(y)]$ o $\lambda z\ [^{\cup}z\ ] \equiv \lambda z\ \lambda y\ [^{\cup}z(y)]$

The function of the specificational *be* is to apply the nominalized property *z* to an individual *y*. Assuming that the complement and the subject of the copula can occur in either order (cf. Partee 1986 and Williams 1983), we change the order of the variables. – I have rephrased the two paragraphs following formula (60).

We now have all the ingredients to derive a specificational sentence in a compositional way:

(61) a.   It is Raskolnikov.
     b. $[_S [_{XP} \text{it}] [\text{ is } [_{DP} \text{Raskolnikov}]]]$
              $\downarrow$ $\downarrow$ $\downarrow$
           x_i $\lambda y \lambda z [^{\cup}z(y)]$ (**rask**)

The semantics of the whole sentence is derived below.

(62) a.   [is Raskolnikov]: $[\lambda y \lambda z [^{\cup}z(y)]]$ (**rask**) $\equiv \lambda z [^{\cup}z(\textbf{rask})]$
     b. $[_S$ it is Raskolnikov]: $[\lambda z [^{\cup}z(\textbf{rask})]] (x_i) \equiv {^{\cup}}x_i(\textbf{rask})$

The result achieved in (62b) can be paraphrased thus: "the contextually specified property *x* holds of Raskolnikov".

Let us return to the specificational sentence *The murderer is Raskolnikov*. As the pronoun *it* and the XP1 *the murderer* can be anaphorically related, as shown in (56b) above, we can assume that *the murderer* has the same referential status as the pronoun; that is, it denotes a nominalized property. But for the XP *the murderer* such an interpretation is not basic but is derived. For the semantic derivation, we would suggest the following device:

a)   we predicativize the individual *the murderer* via *ident* type shift, thus obtaining the property "being identical to the murderer", cf. (63a);
b)   this property, in turn, can be nominalized by the nominalization operator $^{\cap}$; the result is the entity-correlate of the property "being the murderer" in (63b);
c)   now we can compose the shifted meaning of XP1 with the meaning of the constituent [copula + XP2] from (62a) repeated in (63c); the result is given in the last line of (63d).

(63) a.   *ident* $(\iota x [\text{MURDERER}(x)]) \equiv \lambda y [\iota x [\text{MURDERER}(x)] = y]$
     b.   *nom* $(\lambda y [\iota x [\text{MURDERER}(x)] = y])$
              $\equiv {^{\cap}}\lambda y [\iota x [\text{MURDERER}(x)] = y]$
     c.   [be Raskolnikov: $\lambda z [^{\cup}z(\textbf{rask})]$
     d. $[\lambda z [^{\cup}z(\textbf{rask})]]$ $(^{\cap}\lambda y [\iota x [\text{MURDERER}(x)] = y])$
              $\equiv [[^{\cup\cap} \lambda y [\iota x [\text{MURDERER}(x)] = y]] (\textbf{rask})$
              $\equiv [\lambda y [\iota x [\text{MURDERER}(x)] = y]] (\textbf{rask})$
              $\equiv \iota x [\text{MURDERER}(x)] = \textbf{rask}$

Interestingly, the result we receive in (63d) amounts to the same as the one we obtained for Russian in (53b) above. What distinguishes the two languages is the semantics of the constituents. While in Russian, the XP1 position is filled by a predicate, which denotes a property, XP1 is of an argumental type in English; that is, it denotes a nominalized property.

The differences between Russian and English regarding the syntax-semantics mapping in specificational sentences are attributable to language specific grammatical restrictions. In English, the property of being the topic and belonging to the background coincides with the property of (preferably) being the subject. English does not allow a predicate in subject position. As Partee (1998) notes, in Russian, because of the relatively free word-order it has at its disposal, the topic and syntactic subject need not be the same element. This has consequences for the syntax-semantics mapping in specificational sentences.

5. CONCLUDING REMARKS

In this paper we have explored the mapping between the syntax and semantics of copular sentences in Russian in comparison to English. We argued for a single underlying semantics of the copula in predicational, equative und specificational sentences in both languages. The difference in interpretation between types of copular sentence can be explained by the *ident*-type-shift, which enters the semantic composition at different places in the sentence. In equative sentences, the *ident* operator applies to the element that combines two DPs. In English, this element is the predicational copula. Since in Russian, the copula in the present tense is zero, the *ident* operator applies to the demonstrative pronoun *èto*. As for specificational sentences in English and Russian, the *ident* operator applies to the first referential DP, turning it into a predicate. Since in English, unlike in Russian, XP1 has argumental status, some additional type-shift operators have to be assumed in the semantic composition of English specificational sentences. The additional operations are the following: the change of the argument structure of the predicational copula which, in specificational sentences, takes a nominalized property and applies it to an argument, and the nominalization of the XP1. The paper derives the invariant semantics for predicational, equative and specificational sentences and explores how this invariant semantics is mapped to the syntactic structure in the two languages. The differences in mapping can be traced back to independent differences in the morpho-syntax of the two languages.

The paper contributes to the general understanding of conditions and domains for application of type-shift operators. Originally, the type-shift operators such as *ident* were assumed to account for different interpretations of noun phrases. In this paper, we extended the domain of application for the type-shifter *ident* to verbs. In English, we assume that in equative and specificational sentences, the predicational copula has to be shifted. Interestingly, the contrast between the type-shifted copulas and the predicational (i.e. basic) copula shows up in small clauses. The verb *consider* can take predicational, equative and specificational small clauses as its complement. While in the predicational small clause of *consider* in (64a)*,* the copula of

predication can be omitted, the shifted copula of identity and the shifted copula of specification in (64b/c) cannot be.

(64) a.   They considered Cicero (to be) a talented politician. *predicational be*
    b.   They considered Cicero *(to be) Tully.   *equational be*
    c.   They considered the best politician *(to be) Cicero. *specificational be*

These data, which are already known in the literature, suggest that type-shift operators can only apply to overt elements in the sentence. This can explain why in Russian, a language with a zero present form copula, an additional overt element, the pronoun *èto*, is employed in equative sentences. The *ident*-type shift can apply to this pronoun to convey equative semantics. However, we have for the moment no explanation for why it is a demonstrative pronoun that appears in Russian instead of a verbal copula.

In further research, other types of copular sentence will have to be explored and used as a test for the type-driven analysis suggested in this paper. The conditions and restrictions for the application of type-shifters also merit further explorations.

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NOTES

[2] The inherited present tense form *est'*, which was originally the 3 Person Singular form of *byt'*, has lost other forms and can be used for all Persons and Number. This archaic form is sometimes used in definitions and if tense is focused, cf.

(i)   Astrologija est' nauka.
          astrology is   science
          'Astrology is a science.'
(ii)   On byl est' i   budet tvoim otcom
          he was is and will-be your   father
          'He was and will always be your father.'

As an anonymous reviewer points out, there is a further, frequently used, copular verb in modern Russian: *javljat'sja*. *Javljat'sja* has no precise counterpart in English, but can be approximately translated in English as *'be'*. Unlike *byt'*, *javljats'ja* has an overt form in present tense. However, contrary to *byt'*, the

copula *javljat'sja* has a very restricted distribution as it can only combine with predicative NPs which denote some quality, and never with NPs denoting just professions or nationality.

[3] We neglect, throughout the paper, tense and aspect markings of the copula verb.

[4] In addition to these two types, Partee (1987) proposes the quantificational type $<<e,t>,t>$. I will disregard this third type and will analyze noun phrases in argument positions generally as *e*-type.

[5] In what follows, we will use "NP" to refer to nominals that do not contain the functional D-layer, and "DP" to refer to nominals that do contain such a layer. The term *noun phrase* or XP will be used if we want to let the status of a noun phrase remain unspecified.

[6] Since the identity relation is a symmetric relation, the variables x_i and y in the formula can stay in either order.

[7] As an anonymous reviewer points out, the second noun phrase in an equative sentence cannot be an indefinite, whereas it can be an indefinite in a predicational sentence.

[8] The predicate "=" "identical with" means simply "has the same denotation as".

[9] The pronoun *èto* has many different interpretations. It can be related to concrete individuals but also to abstract individuals and propositions, cf. Junghanns (1997) among others. In this paper only the former use of *èto* is considered.

[10] An anonymous reviewer points out that in earlier stages of Russian, the archaic present form copula *est'* was used in equative sentences instead of *èto*. He/she quotes a statement from Lenin:

> (i) Kommunizm **est'** sovetskaja vlast' pljus èlektrifikacija vsej   strany.
>   communism is Soviet   power plus electrification of-whole conutry
>   'Communism is Soviet power plus the electrification of the whole country.'

The reviewer states that, later, people misquoted this quotation as *Kommunizm **èto** sovetstkaja vlast' pljus èlektrifikacija vsej strany*. This datum illustrates the diachronic change from verbal copula in present tense, which gradually got lost, to a pronominal copula with the same function of maintaining the identity relation between two referents.

[11] Sentences like *The TEACHER was JOHN* with two focused phrases or *The TEACHER was John* with the main focus on XP1 are not interpreted specificationally. They occur in contexts different to those of specificationals and also differ structurally, (see Heycock & Kroch 2002 and Mikkelsen 2002a, 2003 for details).

[12] Such sentences are acceptable only if the inverted predicate gets a focus accent and a falling intonation. But in this case, the construction is not a specificational sentence. In specificationals, the pre-copular phrase belongs to the background and hence is not focused. For the structural differences between predicate inversion and specificational sentences, see Mikkelsen (2002a, 2003).

[13] I follow Molnár (1991, 1993) in assuming the topic-comment structure as one of the three levels of information structure besides the focus-background structure and theme-rheme structure.

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