Chapter 15

The role of the correlate in clause-embedding

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This contribution analyzes cataphoric and anaphoric correlates in contemporary German and Russian. It concentrates on their role in the reference to finite clauses. On the basis of a minimalist conception of sound-meaning correlation and discriminating between semantic form and conceptual structure, lexical entries for correlates and lexical heads are presented with special emphasis on the syntactic and semantic functions of dependent clauses. In addition to the nominalizing function of the cataphoric correlates, two templates are proposed to accommodate embedded clauses to their respective role as modifiers or as arguments.

Keywords: anaphors, cataphors, demonstratives, embedded clauses, modifiers, adjunct clauses, adverbial clauses, argument clauses, semantic accommodations, c-selection, s-selection

1 Introduction

The main concern of this contribution is the role of demonstrative pronouns with regard to embedded clauses. In many languages, the embedding of clauses can be connected with the presence of a cataphoric demonstrative pronoun.[1] In German, this is the neuter pronoun *es* 'it' or its suppletive definite determiner forms *dessen*, *dem*, *da(r)*, and in Slavic languages like Russian, the various case forms

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[1]See Pütz (1986), Sudhoff (2003, 2016), Mollica (2010), Willer-Gold (2013), Schwabe et al. (2016), Bondaruk (2015), Knyazev (2016), Zimmermann (1967, 1983, 1993, 2016a,b, 2018a, 2019b). Correlates and clause integration in the history of German was discussed by Axel (2009), Axel-Tober (2011).

of the demonstrative pronoun *to* 'that' are used.[2] The corresponding anaphoric correlate is *éto* 'this'. In German, the neuter personal pronoun *es* 'it', its suppletive forms, or the demonstrative *dies-* 'this' can refer to previously mentioned clauses. It will be shown which morphosyntactic features characterize these pronouns and to which meaning components they correspond. I will concentrate on non-/anaphoric definite demonstrative elements ([+def, +dem, ±anaph]) in D (see 21). Specificity, uniqueness, deixis, and exhaustivity are left aside.[3] At first, cataphoric correlates will be inspected.

(1) a. Wir werden es   berücksichtigen, dass der Professor schlecht
        we will   it.ACC take.into.account that the professor badly
        hört.   (German)
        hears

   b. My učtëm   to,   čto professor ploxo slyšit. (Russian)
        we take.into.account.PFV it.ACC that professor badly hears

   'We will take it into account that the professor is hard of hearing.'

(2) a. Man muss dem   (, dass Peter faul ist)$_\alpha$ zustimmen (, dass Peter faul
        one must it.DAT   that Peter lazy is   agree   that Peter lazy
        ist)$_{-\alpha}$.   (German)
        is

   b. Nado   soglasit'sja s   tem, čto Pëtr lenivyj.   (Russian)
        necessary agree   with it.INS that Peter lazy

   'One has to agree that Peter is lazy.'

German and Russian behave differently with respect to extraposition of the embedded clause/CP. In Russian – like in other Slavic languages – the CP can remain within its nominal or prepositional shell.[4] In German, on the other hand, the pronoun *es* 'it' requires to be exhaustively dominated by DP, without any co-constituent, as is the case in (1a). This is a phonological peculiarity of this item, listed in its lexical entry (see 21a). The suppletive forms of *es* do not exhibit this peculiarity; see (2a). Extraposition of CP takes place for phonological and/or computational reasons and is not visible semantically. It is due to the heaviness of CP and related to processes of performance. I treat it as an operation on the

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[2]German suppletive *da(r)* needs a preposition to its right as phonological host (see the analysis in Breindl 1989).

[3]See Schwarz (2009), Šimík (2016), Bombi (2018), and Borik (2019) on these issues.

[4]In Croatian, this is always the case. There is no extraposition of the embedded clause (see Willer-Gold 2013).

level of PHONOLOGICAL FORM (PF). In the syntactic base, the correlate and the embedded clause constitute a complex entity, undergoing compositional semantic interpretation.[5]

The respective forms of the correlate as well as the syntactic and semantic types of the embedded clause are determined by the embedding lexical head – verbs as in (3)/(4), adjectives as in (5)/(6), and prepositions as in (7)/(8).[6,7]

(3) a. es   sehen, dass / ob / wer / wie …   (German)
         it.ACC see   that if   who how
         'see it that/whether/who/how …'

    b. sich dafür, dass / ob / wer … interessieren
        REFL DEF.for that if   who   be.interested
        'be interested in it that/whether/who …'

    c. daran, dass / ob … zweifeln
        DEF.at that if   doubt
        'doubt about it that/whether …'

    d. sich danach, ob / wer … erkundigen
        REFL DEF.after if   who   inquire
        'inquire about it whether/who …'

    e. es   verlangen, dass …
        it.ACC demand   that
        'demand that …'

    f. es   jemandem   gefallen, dass / wer …
        it.NOM somebody.DAT like   that   who
        'like it that/who …

(4) a. videt' to,   čto / li / kto / kak …   (Russian)
         see   this.ACC that if   who how
         'see it that/whether/who/how …'

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    b. interesovat'sja   tem,   čto / li / kto …
       be.interested.REFL this.INS that   if   who
       'be interested in it that/whether/who …'

    c. somnevat'sja v tom,   čto / li …
       doubt.REFL   in this.LOC that if
       'doubt about it that/whether …'

    d. osvedomljat'sja o   tom,   li / kto …
       inquire.REFL   about this.LOC if   who
       'inquire about it whether/who …'

    e. trebovat' togo,   čtoby   …
       demand   this.GEN that.SBJV
       'demand that …'

    f. to,   čto / kto … nravit'sja komu
       this.NOM that who   like.REFL who.DAT
       'like it that/who …'

(5) a. davon, dass / ob / wer … abhängig …   (German)
       DEF.of that if   who   dependent
       'dependent on it that/whether/who …'

    b. darüber,   dass / wer … froh   …
       DEF.about that who   happy
       'happy about it that/who …'

    c. es   … erforderlich, dass …
       it.NOM/ACC necessary   that
       'it … necessary, that …'

(6) a. zavisim- ot togo,   čto / li / kto …   (Russian)
       dependent of this.GEN that if   who
       'dependent on it that/whether/who …'

    b. rad   tomu, čto / kto …
       happy this.DAT that   who
       'happy about it that/who …'

    c. neobxodimo to,   čtoby …
       necessary   this.NOM that
       'it … necessary, that …'

(7) a. nachdem   …   (German)
       after.this.DAT
       'after …'

   b. damit   …
      DEF.with
      'in order to …'

   c. deswegen,   weil   …
      this.GEN.because.of because
      'for the reason that …'

   d. indem …
      in.this.DAT
      'by …'

(8)   a. posle togo,   kak …   (Russian)
         after this.GEN how
         'after …'

   b. dlja togo   / s   tem,   čtoby   …
      for this.GEN with this.INS that.SBJV
      'in order to …'

   c. po   tomu,   čto …
      through this.DAT that
      'for the reason that …'

   d. tem,   čto …
      this.INS that
      'by …'

The morphosyntactic dependence between the head and the cataphoric correlate and the embedded clause is government. The governor licenses its dependents by feature sharing. The respective heads of the dependents bear morphosyntactic features in their lexical entries, case features of the correlate, and clause type features in C of the embedded clause.[8] The governor with corresponding features associated with the respective argument positions c-selects its dependents by licensing their features (see Zimmermann 1990, 2013, Pitsch 2014a,b).

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[8]Case features are [±governed, ±oblique] and [±R(ichtung), ±U(mfang), ±P(eripherie)] for German (see Bierwisch 1967) and for Russian (see Jakobson 1936, 1958), respectively. Subclassifying features of C are [−interr(ogative), −dir(ective)] for *dass/čto* 'that', [+subj(unctive)] for *čtoby* 'that; in order to', [−def(inite), +interr, −wh] for *ob/li* 'if; whether', [−def, +interr, +wh] for *wer/kto* 'who' in interrogative clauses, [+def, +interr, +wh] for *wer/kto* in emotive and [+def, +interr,αwh] in epistemic contexts, and [+percept(ion)] for *wie/kak* 'how'. For German V2-embeddings we would have to add [−interr, −dir, +EPP] (Extended Projection Priniciple), and for languages like Croatian, Bulgarian, and modern Greek, which differentiate between factive and non-factive complementizers, [−interr, −dir, ±fact(ive)].

The embedded clause/CP gets a nominal shell by means of the correlate, a case-marked DP, and thus becomes opaque for extractions. Furthermore, the correlate allows marking the respective complement as part of the discourse and as ingredient of information structure (see the comprehensive treatment of Willer-Gold 2013).

Concerning the interrelation between the cataphoric correlate and the embedded clause, it is not a priori clear whether the two parts c- or s-select each other, how the correlate combines with the various clause types syntactically and semantically, and whether the correlate has anything to do with the function of determiners. It will be shown what it means to supply embedded clauses with nominal character and how the embedded CP gets the status of an adnominal modifier. In this connection, a comparison is made between DPs with a pronominal head and DPs with a determiner and a lexical head regarding their role in the embedding of clauses. The following considerations are a contribution to the ongoing discussion concerning the question whether all embedded clauses have the status of relative clauses, i.e. of predicate expressions.[9]

2 The analysis

My considerations are built on a conception of minimalism (see Chomsky 1995, 2001) and on the central role of the lexicon as the interface of different levels (see Zimmermann 1987, Jackendoff & Audring 2019).

2.1 Syntax

For the syntax of finite root and embedded clauses, I assume the following structural domains:

(9)   (ForceP) CP – MoodP TP … AspP *v*P VP

ForceP introduces the illocutionary operator of root clauses. CP is differentiated by clause-type features (see footnote 8), TP by the tense features ±pret ±fut, and AspP by the aspectual feature ±perf. The corresponding feature combinations are semantically interpreted and mirrored in the morphological word structure

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[9]I will only address finite embedded clauses. Infinitival and exceptional case marking (ECM) constructions are neglected. What is noteworthy here is the fact that ECM verbs and verbs with V2-complements do not occur with a correlate. With infinitival clauses, the correlate is optional.

of the inflected verb (Zimmermann 1990, 2013, Pitsch 2014a,b). Depending on semantic scope relations, '–' and '...' in (9) can be specified by further functional categories for information-structural or temporal and aspectual properties, respectively. Whether ForceP is to be analyzed as being composed of several layers in order to integrate various types of sentence adverbials is a matter of ongoing discussion (see, a.o., Krifka 2021).

As to the syntax of DPs, it is assumed that D can be occupied by various types of determiners and pronouns. The cataphoric correlate has an obligatory clausal dependent whilst the corresponding anaphoric pronouns *es/das*, *dessen*, *dem*, *da(r)* in German and *ėto* in its various case forms in Russian occur separately or are accompanied by an apposition. (10) represents the corresponding syntactic configurations. (I assume that the German adverbial form *da(r)* is base-generated in D and raised to P.)

(10)   a. $\left[_{XP} X_\alpha\ ([_{PP} P)_\beta\ [_{DP}\ [_{D'}\ [_D\ \{\{es/das\},\ to,\ \varnothing\}]]\ CP]\ (]])_\beta\ X_{-\alpha}\right]$

      b. $\left[_{XP} X_\alpha\ ([_{PP} P)_\beta\ [_{DP}\ [_{DP}\ [_{D'}\ [_D\ \{\{es/das\},\ \dot{e}to\}]]]\ (])_\beta\ (CP)]\ X_{-\alpha}\right]$

The correlate in (10a) functions as a cataphoric entity and is characterized as a determiner with an additional position for an explicative modifier (CP) (it will be shown in §2.4 that a zero correlate is necessary in many cases). X is the governing lexical head with a PP- or DP-complement and an embedded clause located in SpecDP where it is accessible for government by P or X.[10] The governing c-selectional properties of X concern the preposition or the case of the DP and the syntactic type of the embedded CP. The analysis proposed in (10a) guarantees that the pertinent governed constituents are accessible for the governor independent from one another.

It deserves mentioning that idiosyncratic PPs and DPs with lexical cases can be omitted such that the embedded CP appears directly associated with the governing head; see (11) (for structural, lexical, and inherent cases see Smirnova & Jackendoff 2017). Predominantly, this is the case whenever the correlate does not signal givenness. The possible omission is considered a PF-operation. Evidently, the omission of idiosyncratically governed PPs or DPs with the correlate requires previous extraposition of the embedded CP.

(11)   a. Man muss ($[_{DP}\ [_{D'}$ dem]]) zustimmen, dass Peter faul ist. (German)
        one must   this.DAT agree   that Peter lazy is

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[10]For other proposals and on the distribution of the accusative correlates *es* and *das* see Axel-Tober et al. (2016). For reasons of space, I will not discuss the peculiarities of this analysis.

b. Nado   soglasit'sja ([PP s   [DP [D′ tem   ]]]), čto   Pëtr
    necessary agree   with   this.INS   that Peter
    lenivyj.
    lazy

   'One has to agree that Peter is lazy.'   (Russian)

In (12) it is shown that the relative pronoun *dem* and the PP *s čem*, respectively, must be present in order to refer to the coreferential clause.[11]

(12)   a.   Peter ist faul$_i$, *(dem$_i$)   man zustimmen muss.   (German)
           Peter is   lazy   this.DAT one   agree   must

       b.   Pëtr   lenivyj$_i$, *(s   čem$_i$)   nado   soglasit'sja.   (Russian)
           Peter lazy   with what.INS necessary agree

   'Peter is lazy, on which one has to agree.'

The same is true for corresponding interrogative pronouns as in (13)[12] and for anaphoric pronouns relating to clausal antecedents as in (14).[13]

(13)   S   čem   nado   soglasit'sja?   (Russian)
      with what.INS necessary agree

   'On what must one agree?'

(14)   a.   Peter ist faul$_i$. Dem$_i$ muss man zustimmen.   (German)
           Peter is   lazy   this.DAT must one   agree

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[11]In Willer-Gold (2013), I found many continuative appositives like *što umogućuje da* … 'what makes possible that …', *na što ukazuje* … 'to what points …' , *što je u skladu s* … 'what is in harmony with …' , *što znači da* … 'what means that …', *iz čega izlazi* … 'from what follows …', *zbog čega* … 'since …', *nakon čega* … 'whereafter …', etc.

[12]Strangely, the German interrogative pronoun *was* does not have a dative:

   (i)   {*Wem   / welchem Urteil}   muss man zustimmen?   (German)
        who.DAT   which judgement.DAT must one   agree

     'On which judgement must one agree?'

[13]So-called echo-questions (see Beck & Reis 2018) require the unreduced form of embeddings:

   (i)   a.   Nado   soglasit'sja (s   tem),   čto Pëtr lenivyj.   (Russian)
            necessary agree   with this.INS that Peter lazy

      'It is necessary to agree (on it) that Peter is lazy.'

       b.   *(S   čem)   nado   soglasit'sja?
           with what.INS necessary agree

      Intended: 'On WHAT is it necessary to agree?'

  b. Pëtr lenivyj*ᵢ*. S ėtim*ᵢ* nado soglasit'sja.   (Russian)
     Peter lazy   with this.ɪɴs necessary agree

'Peter is lazy. One has to agree on this.'

The pronouns in (12–14), which all refer to clauses, cannot be left out of consideration when it comes to the characterization of the c- and s-selectional properties of the pertinent matrix predicates as well as to the treatment of the correlate with regard to its role in nominalizing embedded clauses (see Zimmermann 2019b).

2.2 Semantics

Whereas c-selection has to do with the morphosyntactic compatibility of co-constituents, s-selection concerns their semantic interrelation. First of all, semantic typing of lexical and syntactic components belongs to s-selection. I assume the following elementary semantic types: *e* for individuals, *i* for time spans, *d* for degrees, *t* for propositions, *s* for worlds, and *a* for illocutionary acts (see Krifka 2004). All other semantic types are composed of these differentiations. Many heads are multifunctional as to their s-selectional properties (see 22).[14]

As for the semantic type of embedded clauses and the pronouns referring to them, there is much discussion in the literature (see below; within inquisitive semantics, see Roelofsen 2019, Theiler et al. 2018). I shall assume the following: relative and adverbial clauses are predicates of type $\langle et \rangle$, $\langle it \rangle$, $\langle tt \rangle$, $\langle st\langle t\rangle\rangle$, or $\langle st \rangle$, while complement clauses are of type *t* or $\langle st \rangle$. As in Brandt et al. (1992) and Zimmermann (1993, 2009), interrogative w/k-clauses and *ob/li*-clauses – being introduced by a question operator – are of type $\langle st \rangle$ and have a special semantic structure representing focus and background (see Krifka 2001).

In general, I distinguish between grammatically determined sᴇᴍᴀɴᴛɪᴄ ғᴏʀᴍ (SF) and ᴄᴏɴᴄᴇᴘᴛᴜᴀʟ sᴛʀᴜᴄᴛᴜʀᴇ (CS) (see Bierwisch & Lang 1987, Bierwisch

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[14]Whilst *wissen* 'know' – except for cases like *(k)eine Antwort/Lösung wissen* '(not) know an answer/a solution' – takes only propositional objects, *sehen* 'see' is compatible with propositional and individual objects. Both verbs can combine the propositional object with a correlate. In contrast, *kennen* 'know (of)' must be accompanied by the correlate when it takes a propositional object; see (i).

  (i) a. Ich weiß ({es / das}), dass Marienkäfer beißen.   (German)
          I   know it this that ladybugs   bite
          'I know that ladybugs bite.'
       b. Ich kenne *({es / das}), dass Marienkäfer beißen.
          I   know   it this that ladybugs   bite
          'I am familiar with the fact that ladybugs bite.'

2007, Lang & Maienborn 2011). Unbound variables are parameters which are specified or appropriately bound in CS. Where necessary, semantic type shifts apply in the course of semantic amalgamation of constituents. In this paper, two predicate makers will play a role (see below).

Possible-world semantics discriminates between propositions p of type t and world-related propositions $\lambda w.p(w)$ of type $\langle st \rangle$. A world w is considered as a mental reflection by a human being of the world w_u in which (s)he exists. Therefore, the illocutionary operator of declarative root clauses (DECL) – associated with the meaning postulate (MP) in (16) – will be represented as in (15).

(15) $[\![\varnothing_{+\text{Force}}]\!] = \lambda p.\text{DECL } p \in \langle st\langle a \rangle \rangle$

(16) (MP1)

$$\forall p.\text{DECL } p \quad \rightarrow \quad \Big[\big[\text{EXPRESS}(p)(sp)\big] \wedge \Big[\big[\text{HOLD}(\exists d\,[[d = N] \wedge$$
$$[\text{CERTAIN}(p)(d)]])(sp)\big] \wedge \forall w\big[[w \subseteq w_{sp}] \rightarrow p(w)\big]\Big]\Big]$$

The MP in (16) derives the mental fact that in declarative clauses the speaker – by expressing p – considers it certain that p is true in their world. Furthermore, I propose the MP in (17): For positive attitudinal and emotive predicates, it derives the general fact that the holder of the attitude or emotion is to some degree certain that $p_{[-\text{interr}-\text{dir}]}$ is true in their world (see footnote 8 as to clause-type features).

(17) (MP2)

$$\forall p_{[-\text{interr}-\text{dir}]}.\forall x.\exists P_{\text{att/emot}}\Big[[P_{\text{att/emot}}(p)(x)] \rightarrow \Big[\big[\text{HOLD}(\exists d\,[[(d)\,R\,(N)] \wedge$$
$$[\text{CERTAIN}(p)(d)]])(x)\big] \wedge$$
$$\forall w\big[[w \subseteq w_x] \rightarrow p(w)\big]\Big]\Big],$$

with $R \in \{=, <, >, ...\}$, depending on $P_{\text{att/emot}}$.

Both MP's characterize the speaker of declarative clauses and the subject of attitudes and emotions, respectively, as judge for the truth of a proposition such that (s)he is certain or believes that p is true in her/his world. The semantic component CERTAIN is connected with a degree argument d, which in the default case has a norm value. The value for the relational parameter R in (17) depends on the respective attitudinal or emotive verb.

2.3 Lexical entries

The lexicon plays a crucial role in the sound meaning correlation of constituents (see Zimmermann 1987, 2018b). Every lexical entry (except for zero morphemes) contains the phonological characterization, the morphosyntactic categorization, and the grammatically determined semantic form of the relevant lexical item. As regards morphology, I adhere to an approach according to which the lexicon brings in fully derived and inflected word forms (see, a.o., Zimmermann 1987, 1988, 1990, 2013, 2018b, Wunderlich 1997, Pitsch 2014a,b).

2.3.1 The correlate

With regard to correlates referring to clauses, some general considerations on demonstratives and their relation to definite determiners are in order (see, a.o., Fabricius-Hansen 1981, Schwabe 2013, Schwabe et al. 2016). Languages differ with respect to the explicitness and the linear order of these two elements. Furthermore, it must be clarified by which morphosyntactic features they are characterized and to which meaning components of the respective pronouns these features correspond.

I assume that definiteness corresponds to the operator in (18a), which is equivalent to (18b), where P_1 is the – possibly unspecified – restrictor while P_2 is the nucleus.

(18)   a. $(\lambda P_1).\lambda P_2.\exists!x\big[[P_1(x)] \wedge [P_2(x)]\big]$
       b. $(\lambda P_1).\lambda P_2\big[P_2(\iota x[P_1(x)])\big]$

For Russian as an articleless language, I assume a zero determiner D with the SF in (19). It is anonymous as to definiteness and delivers a term without a binder of x. It will be specified depending on the respective context.

(19) $\lambda P_1.\lambda P_2\big[[P_1(x)] \wedge [P_2(x)]\big]$

The features [+demonstrative, +anaphoric] correspond to a predicate $\lambda x[Q(x)]$ with a parameter Q. The latter is specified on the level of CS, hence depends on the linguistic or extralinguistic context.

The cataphoric correlate has the features [+def, +dem, −anaphoric] and the meaning of the definite determiner with a complex restrictor composed of a modificandum (P_1) and a modifier (Q). The meaning of the cataphoric correlate is given in (20) with an obligatory modifier. Q is a predicate to be specified by the meaning of an embedded CP, which will, if necessary, be accommodated to the semantics of a relative clause.

(20) $(\lambda P_1).\lambda Q.\lambda P_2\Big[P_2\big(\iota x[[P_1(x)] \wedge [Q(x)]]\big)\Big]$

In complementary distribution to this specification, we get the semantic representation of the anaphoric pronouns *das* or *dies-* in German and *ėto* in Russian when the predicate Q remains unspecified in SF. Thus, the anaphoric parameter Q and an embedded relative clause are treated as being in complementary distribution, semantically.[15]

Fundamental for my approach is the assumption that operators like ∃! or ι can combine with variables of all types, not only with x_e.

The lexical entry for the German and Russian nominative and accusative cataphoric correlates is given in (21).

(21)   a.   /{{es_α/das}/to/$\varnothing$}/, ([$_{\text{DP}}$ __])$_\alpha$
       b.   [+D, +def, +dem, −anaph, βgiven, −I, −II, −pl, −fem, −masc, {γgoverned, −oblique/γR, −P, −U}]
       c. $(\lambda P_1).\lambda Q.\lambda P_2\Big[P_2\big(\iota x[[P_1(x)] \wedge [Q(x)]]\big)\Big]$ $Q, P_1, P_2 \in \langle\delta t\rangle, \delta \in \{t, st, e, i\}$

The correlate *es* 'it' cannot be accented and is a complete DP phonologically. This peculiarity is represented in (21a) (as to the zero correlate in (21a), see §2.4.) It implies that the explicative CP cannot be its co-constituent in PF. Therefore, in German, the CP must undergo extraposition. The correlates in (21) are characterized as ι-bound demonstrative determiners which are used cataphorically (not anaphorically).[16]

They require an attribute $[Q(x)]$ and express a generalized quantifier with a parametric restrictor P_1 and the nucleus P_2. The feature [given] must not necessarily be specified as [+given]. Often the correlate simply serves to embed

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[15][αdef, +interr]-pronouns belong to the same distributional class. They are treated as definite or indefinite Ds with a complex restrictor consisting of $[P_1(x) \wedge Q(x)]$, where Q will be bound by the existential operator or a question operator, depending on the value of the feature [αdef].

[16]When the correlates in (21) are used anaphorically, the predicate variable Q in (21c) remains unspecified. Typically, this is the case with German *dies-* and Russian *ėt-*; see (i).

(i)   a.   Dass der Professor schlecht hört, {das / dieses Problem} werden wir
            that the professor badly   hears this   this   problem will   we
            berücksichtigen.   (German)
            respect

       b.   Čto professor ploxo slyšit, {ėto / ėtu problemu} my učtëm.   (Russian)
            that professor badly hears this this problem   we respect.ᴘꜰᴠ

       'That the professor is hard of hearing, {it/this problem} will be respected by us.'

clauses into DPs. (As an aside note, in German linguistics practice, correlates without anaphoric function are called "placeholders". In Zimmermann (2019b), I combine the feature [+given] with a special qualification in the semantics of the correlate, which is not considered here.) Observe that predicates with idiosyncratically governed PP- or DP-arguments cannot embed clauses without nominal shells, irrespective of whether these arguments are or are not given.

In contrast to DPs like in $[_{DP}$ $[_D$ *das*$][_{NP}$ *Haus*$]]/[_{DP}$ $[_D$ *ėtot* $][_{NP}$ *dom*$]]$ 'the/this house', correlates have no NP-complement in syntax. The restrictor P_1 remains unspecified.[17] Thereby, the cataphoric definite determiner co-occurs with the explicative CP to its right in SpecDP (see 10a). Both constituents can be governed by predicate expressions or prepositions from the outside. This guarantees that the DP as an argument expression gets case and the propositional adjunct can be selected for its clause type. (Clause types are discriminated by features in C, see footnote 8.)

2.3.2 Governing predicates

In order to illustrate the relation between a lexical governor and the governed constituents within a complex DP with a correlate the following lexical entries will be represented (see Zimmermann 2016b: 42–45):

(22)   a. /{zufrieden/dovolen$_\alpha$}/

      b. [+V, +N, (−fem, −neuter, −pl)$_\alpha$]

      c. $(\lambda d).(\lambda x_{[\{mit/+R+P-U\};(-interr-dir/+def+interr+wh)]}).\lambda z\big[[(d) = (N)] \wedge$ [CONTENT-WITH$(d)(x)(z)]\big]$, where CONTENT-WITH $\in \langle d\langle\beta\langle et\rangle\rangle\rangle, \beta \in \{e, st\}$

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[17]Unbound variables like P_1 in (21c) enter the conceptual interpretation of linguistic expressions as parameters and can be specified by suitable predicates or are existentially bound. A very general specification would be Kratzer's (2016) predicate $\lambda x.$[THING(x)] (see footnote 20). Bondaruk et al. (2017: 67) show that the correlate *to* 'this' in Polish can be replaced with the noun *fakt* 'fact'. Mollica (2010: 2.4) presents a comprehensive investigation on Italian *il fatto* 'the fact' as a cataphoric correlate. It does not necessarily signal factivity of the embedded CP, as in (i). French *fait* , Spanish *hecho*, and Croatian *činjenica* (all: 'fact') behave alike.

(i)   a. Insist-o   su-l   fatto che tu   venga.   (Italian, Mollica 2010: 240)
        insist-1SG on-DEF fact   that you come.SBJV

      b. Ich besteh-e   dar-auf, dass du   komm-st.   (German)
        I   insist-1SG it-on   that you come-2SG

      'I insist that you come.'

This entry characterizes the emotive adjective as a comparable predicate with three argument positions. The internal arguments d and x can remain unspecified. When x will be specified it is marked by the preposition *mit* in German and with the instrumental case in Russian. The governed CP in SpecDP can be a clause with the complementizer *dass/čto* 'that' or with a definite w/k-phrase in SpecCP. All features in the index of λx serve the c-selection of the governed dependents.

Semantically, the internal argument x of the adjective *zufrieden/dovolen* 'content' can be a [(P) DP] like *mit der Arbeit/rabotoj* 'with the work' of type e or a [(P) [D′ CP]] like *damit, dass er Arbeit hat/tem, čto on imeet rabotu* 'with it that he has work' or like *damit, wer Arbeit bekommen hat/tem, kto polučil rabotu* 'with it who got work' of type $\langle st \rangle$. The corresponding semantic types are s-selected by the pertinent lexical governor. Thus, I treat the adjective as multivalent with respect to its combinatory possibilities.

(23)   a.   /{Frage$_\alpha$/vopros$_\beta$}/

      b.   [+N, −V, αfem, βmasc, −pl, {γgoverned, −oblique/γR, −P, −U}],
           where $\alpha = + \rightarrow \beta = -, \beta = + \rightarrow \alpha = -$

      c. $\lambda x_{[-\text{def}+\text{interr}]} [\text{QUESTION}(x)] \in \langle et \rangle$

The content nouns *Frage/vopros* 'question' express predicates of type $\langle et \rangle$ and can be used as nominal lexical heads in DPs with predicative or non-predicative function (see below). The c-selectional restrictions associated with the argument position λx concern the status of x as the external argument of the noun and are inherited automatically when the argument is realized as modifier of the noun.

The copula is represented in (24). It is a verb maker as it introduces the eventuality argument e, which is a basic component of verbs. Russian has a zero copula in the present tense.

(24)   a.   /{sein/{byt'/$\varnothing$}}/

      b.   [+V, −N, −fin, −part]

      c. $\lambda P_{[\beta V \gamma N]}.\lambda x.\lambda e[(e) \text{ INST } [P(x)]] \in \langle \alpha t \langle \alpha \langle et \rangle \rangle \rangle$
          $\alpha \in \{st, t, e, i, ...\}, \beta = + \rightarrow \gamma = +$

The c-selectional condition associated with the predicate position λP of the copula prohibits its combination with verb phrases. With respect to s-selection, the copula has a multivalent external argument x. This is shown by the possible values of α.

2.4 The semantics of DPs with a correlate

The correlates in (21) are characterized as definite demonstrative determiners with a possibly unspecified restrictor P_1 combined with an obligatory modifier Q. Syntactically, this modifier is embedded as specifier of DP in order to be accessible for its lexical governor (see 10a). Semantically, Q – like P_1 and P_2 – is a predicate of x, which is bound by the ι-operator. The semantic representation of the embedded CP being the governed clausal dependent of the lexical head must be accommodated in order to function as predicate Q. We must get something like (25a) for Q as a predicate applying to x. This results in the attribute in (25b). Two different predicate makers seem necessary, where the relational variable R is specified in different ways.

(25) a. $\lambda y\,[y\,R\,[\![\text{CP}]\!]]\,(x)$
      b. $[x\,R\,[\![\text{CP}]\!]]$

2.4.1 Two type shifts

2.4.1.1 A conservative predicate maker

The following type shift, a conservative predicate maker, delivers a predicate $\langle \alpha t\rangle$, which preserves the semantic type of the input, α (Zimmermann 2016a). It is the simplest way to get a predicate – by identifying one entity with another one of the same type. Such semantic representations can equivalently be reduced. And it is for this possibility of reduction that non-given DPs with the correlate seem to be semantically pleonastic.

(26) $\lambda z.\lambda y\,[y = z] \in \langle \alpha\langle \alpha t\rangle\rangle, \alpha \in \{st, \ldots\}$ (TS$_{\text{PM1}}$)

This type shift converts the semantic representation of clauses into predicates with the help of the identity functor. By applying (26) to the semantic interpretation of the embedded CP we get $\lambda y\,[y = [\![\text{CP}]\!]]$. (28) shows the result, with (26) applied to the semantic representation of the embedded clause *dass/wer…/čto/kto…* 'that/who …' of type $\langle st\rangle$ in SpecDP, (21c) for the correlate in D, and (22c) for the lexical head A *zufrieden/dovolen* 'content' of the APs in (27a) or (27b), respectively.

(27) a. [$_{AP}$ [$_{PP}$ *mit* [$_{DP}$ [$_{D'}$ *da*] CP]] *zufrieden*]
      b. [$_{AP}$ *dovolen* [$_{DP}$ [$_{D'}$ *tem*] CP]]
      'content with'

(28) ⟦{*damit zufrieden, dass/wer …/dovolen tem, čto/kto …*} 'content with that/who …'⟧

$= 22c(21c(26(⟦\text{CP}⟧)))$

$= \lambda x_{[\{\text{mit}/+\text{R}+\text{P}-\text{U}\};(-\text{interr}-\text{dir}/+\text{def}+\text{interr}+\text{wh})]}.\lambda z\big[[(d) = (N)] \wedge$

$\quad [\text{content-with}(d)(x)(z)]\big] \Big(\lambda Q.\lambda P_2 \big[P_2(\iota x[[P_1(x)] \wedge [Q(x)]]) \big] \Big)$

$\quad \Big(\lambda z.\lambda y[y = z](⟦\text{CP}⟧) \Big) \Big)$

$\equiv \lambda z \Bigg[\big[(d) = (N)\big] \wedge \Big[\text{content-with}(d)(\iota x[[P_1(x)] \wedge$

$\qquad\qquad\qquad\qquad\qquad [(x) = ⟦\text{CP}⟧]])(z) \Big] \Bigg] \in \langle et \rangle$

The ι-operator as a multifunctional binder is not restricted to arguments of type e.[18] In the context of the emotive predicate *zufrieden/dovolen* 'content', it binds x of the accommodated ⟦CP⟧ and characterizes the internal argument x of the adjective as definite. What the semantic amalgamation in (28) shows is that the semantic type $\langle st \rangle$ of its operand ⟦CP⟧ is preserved by template (26). The only semantic contribution of the correlate consists in delivering a nominal argument, in making a referent definite, and in introducing the parameter P_1.

As will be shown in §2.4.2, the type shift (26) applies also to embedded clauses of predicates of saying and believing when they are introduced by the correlate (Zimmermann 2016a,b, 2019a).[19] Without the correlate, they are normal propositional complements. Thus, *Frage/vopros* 'question' as content noun of type $\langle et \rangle$ combines with a propositional argument or modifier only if it has the suitable type $\langle et \langle t \rangle \rangle$ or $\langle et \rangle$, respectively. The corresponding verb *fragen/sprašivat'* 'ask' embeds interrogative complements of type $\langle st \rangle$.

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[18]See Zimmermann (2016b), where it is shown that the pronoun *es* 'it' can refer to entities of various semantic types. Multifunctionality is also assumed for w/k-pronouns and for anaphoric pronouns like *das/ėto* 'this' (Zimmermann 2019b).

[19]In Zimmermann (2016b: 33), I proposed the SF in (i) for the cataphoric correlate:

(i) $\lambda y.\lambda P.\exists! x \big[[x = y] \wedge [P\,x] \big] \in \langle t \langle \langle tt \rangle t \rangle \rangle$

Here, the identity functor figures in the restrictor of the operator and there is no modifier. Thereby, the representation is not comparable with constructions where the restrictor is realized by an NP and accompanied by a modifier as in the following examples. By the treatment of the correlate in the present analysis, this drawback is overcome. If in (21c) the restrictor P_1 in CS will be specified by $\lambda x[x = z]$, one gets – with the help of type shift (26) – the meaning $\lambda y.\lambda P\,[P(\iota x[[x = z] \wedge [x = y]])]$ and by reduction $\lambda y.\lambda P\,[P(\iota x[x = y])]$, which amounts to the solution in Zimmermann (2016b: 33).

2.4.1.2 A conversative predicate maker

Another accommodation of embedded clauses is proposed by Kratzer (2006, 2015, 2016), Moulton (2014, 2015, 2017), Hanink (2016) and Bogal-Albritten & Moulton (2018). The authors speculate that complement clauses in general – being accommodated to predicates – have the status of relative clauses.[20] Instead of their type shift for embedded clauses, I propose the version in (29) (see Zimmermann 2016a, 2018a, 2019a,b):

(29) $\lambda z.\lambda y\,[\text{CONSIST-IN}(z)(y)] \in \langle st\langle et\rangle\rangle$ (TS$_{\text{PM2}}$)

In contrast to template (26), this type shift delivers predicates of type $\langle et\rangle$, changing propositions of type $\langle st\rangle$ to predicates. I propose to apply this template in cases where the restrictor P_1 of the correlate is expressed by content nouns of type $\langle et\rangle$ like *Idee/ideja* 'idea', *Plan/plan* 'plan', *Frage/vopros* 'question', etc. (see Zimmermann 2019a).[21] The result of applying (29) to the semantic representation of an interrogative clause as modifier of content nouns like *Frage/vopros* 'question' together with the cataphoric ι-operator is shown in (30).

(30) ⟦{*die Frage*, {*ob Peter/wer*} *gewonnen hat* / *(tot) vopros*, {*pobedil li Pëtr/kto pobedil*}} 'the question {whether Peter/who won}'⟧

$=21c\,(\llbracket\{Frage/vopros\}\rrbracket(29\,(\llbracket CP\rrbracket)))$

$=\lambda P_1.\lambda Q.\lambda P_2\Big[P_2\Big(\iota x\big[[P_1(x)\wedge[Q(x)]]\big]\Big)\Big]\Big(\lambda y.[\text{QUESTION}(y)]\Big)$

$\qquad\Big(\lambda z\lambda y.[\text{CONSIST-IN}(z)(y)](\llbracket\{ob/wer\}/\{li/kto\}...\rrbracket)\Big)$

$\equiv\lambda P_2\Big[P_2\Big(\iota x[[\text{QUESTION}(x)]\wedge$

$\qquad\qquad[\text{CONSIST-IN}(\llbracket\{ob/wer\}/\{li/kto\}...\rrbracket(x)]]\Big)\Big] \in \langle et\langle t\rangle\rangle$

Another realm for the application of type shift (29) are adverbial clauses (Zimmermann 2018a, 2019b,c). For example, final clauses with *damit, dass/{dlja togo/s*

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[20] See also Arsenijević (2009, 2021 [this volume]) and Caponigro & Polinsky (2011). Within possible-world semantics, Kratzer (2016) proposes the semantic component in (i).

(i) $\lambda p.\lambda x\Big[[\text{THING}(x)]\wedge\forall w\big[[(w)\in\text{CONTENT}(x)\to p(w)]\big]\Big]$

Moltmann (2020) presents a new view with regard to the semantic type of embedded clauses as predicates of content-bearing entitites. It is based on truth-maker and satisfier semantics rather than possible-worlds semantics.

[21] A thorough comparison of this analysis with the approach of Fabricius-Hansen & von Stechow (1989) requires a special study. The authors assume that content nouns are of type $\langle tt\rangle$.

tem}, *čtoby* 'with the aim that' can be interpreted as WITH-THE-AIM-CONSISTING-IN $[\![CP]\!]$, where AIM is the specification of the restrictor P_1 of (21c). This is shown in the semantic representation in (32) of the examples in (31).[22]

(31) a. mit dem Ziel, dass Peter Italienisch lernt   (German)
          with the aim that Peter Italian   learns

      b. s   cel'ju, čto=by   Pëtr učilsja italjanskomu   (Russian)
          with aim.INS that=SBJV Peter learned Italian

      'with the aim that Peter learned Italian'

(32) $[\![\{mit/s\}]\!] \left(21c \left([\![\{Ziel/cel'_\alpha\}]\!]\right) \left(29 \left([\![CP]\!]\right)\right)\right)$
        $= \lambda e\Big[(e)\, R\left(\iota x\big[[\text{AIM}(x)] \wedge [\text{CONSIST-IN}\,([\![CP]\!])(x)]\big]\right)\Big] \in \langle et\rangle$

Here, the adverbializing preposition of semantic type $\langle e\langle et\rangle\rangle$ refers to a relation R between an eventuality e and the complex nominal complement of type e with the correlative determiner, a head noun and its restrictive attribute, the semantically accommodated embedded CP. In Russian, the determiner is represented by a zero correlate (see 21a).

In parallel to the constructions in (31) with an expressed restrictor – German *Ziel* and Russian *cel'* 'aim' –, there are synonymous expressions with the cataphoric correlate and an incorporated component specifying the restrictor (Zimmermann 2019b). This is demonstrated in (33) and (34).

(33) a. damit Peter Italienisch lernt   (German)
          so.that Peter Italian   learns

      b. s   tem, čto=by   Pëtr učilsja italjanskomu   (Russian)
          with it.INS that=SBJV Peter learned Italian

      'so that Peter learned Italian'

(34) $[\![\{damit/s\ tem_\alpha\}]\!] \left(29 \left([\![CP]\!]\right)\right)$
        $= \lambda e.\Big[(e)\, R\left(\iota x\big[[\text{AIM}(x)] \wedge [\text{CONSIST-IN}([\![CP]\!])(x)]\big]\right)\Big] \in \langle et\rangle$

In these examples, the preposition *mit/s* delivers an unspecified relation between the referential argument e of the matrix-clause and the argument x of the adverbial clause which is characterized as purpose clause by the semantic component

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[22]In Russian, the prospectivity of the noun *cel'* 'aim' is connected with the subjunctive in the modifying CP. On the morphosyntax and the meaning of the subjunctive/conditional particle *by* see, a.o., Zimmermann (2015).

AIM, irrespective of whether it is expressed by the noun *Ziel*/*cel'* 'aim' as in (31) or incorporated in the meaning of the connective *damit, dass*/*s tem, čtoby* 'so that' as in (33). In both cases, the template (29) accommodates the meaning of the embedded CP of type $\langle st \rangle$ to a modifying predicate of type $\langle et \rangle$.

Content nouns, typically, also occur as predicative expressions that classify nominalized propositions, as shown in (35)/(36) and (37)/(38).

(35) a. Ob wir die globalen Probleme lösen können, ist eine komplizierte
    if we DEF global problems solve can is a complicated
    Frage.   (German)
    question

  b. Es ist eine komplizierte Frage, ob wir die globalen Probleme lösen
    it is a complicated question if we DEF global problems solve
    können.
    can

  'Whether we can solve the global problems is a complicated question.'

(36) a. Možem li my rešit' global'nye problemy – složnyj vopros.
    can Q we solve global problems complicated question
                                                            (Russian)

  b. To, možem li my rešit' global'nye problemy, – složnyj vopros.
    it can Q we solve global problems complicated question

  'Whether we can solve the global problems is a complicated question.'

(37) a. Dass Peter Italienisch lernt, ist unser Ziel.   (German)
    that Peter Italian learns is our goal

  b. Es ist unser Ziel, dass Peter Italienisch lernt.
    it is our goal that Peter Italian learns

(38) a. Čto=by Pëtr učilsja italjanskomu – naša cel'.   (Russian)
    that=SBJV Peter learned Italian our goal

  b. To, čto=by Pëtr učilsja italjanskomu, – naša cel'.
    it that=SBJV Peter learned Italian our goal

  'That Peter should learn Italian is our goal.'

These predicates are all of type $\langle et \rangle$. This does not correspond to the type of their propositional subjects. Only when they are accompanied by a correlate and properly accommodated are they of the suitable semantic type, $\langle et\langle t\rangle\rangle$. This means that the propositional subjects in (35a), (36a), and in (37a), (38a) are coerced by

a silent nominalizer. It is composed of the zero correlate (21) and the predicate maker (29), as shown in (39).

(39) $\quad \lambda Q.\lambda P_2\Big[P_2\big(\iota x[[P_1(x)] \wedge [Q(x)]]\big)\Big]\big(\lambda z.\lambda y[\text{CONSIST-IN}(z)(y)]([\![\text{CP}]\!])\big)$

$\quad = \lambda P_2\Big[P_2\big(\iota x[[P_1(x)] \wedge [\text{CONSIST-IN}([\![\text{CP}]\!])(x)]]\big)\Big] \in \langle et\langle t\rangle\rangle$

Specifying $[\![\text{CP}]\!]$ by the semantics of the proposition of the subject in (35a), (36a), and (37a), (38a), one gets the nominalized SF in (40). Like the subjects with the correlates in (35b, 36b) and (37b, 38b), it is a suitable argument for the predicates in (35)/(36) and (37)/(38).

(40) $\quad \lambda P_2\Big[P_2\big(\iota x[[P_1(x)] \wedge [\text{CONSIST-IN}(\{[\![\{ob/li\}...]\!]/[\![\{dass/\check{c}toby\}...]\!]\})(x)]]\big)\Big]$
$\quad \in \langle et\langle t\rangle\rangle$

With the semantics of the copula and the functional categories of the matrix-clause we get (41) as the SF of the examples in (38). The peculiarities of the syntax and semantics of the functional CP-domains need not interest us here (on the syntax see (9)). Attention should be paid to the semantic amalgamation of the copula with the predicative and the nominalized propositional subject.

(41) $\quad$ DECL $\lambda w.\exists e\Big[[(e) \leq (w)] \wedge \Big[[\neg[(t) < (t^0)]] \wedge \Big[[\tau(e) \supseteq (t)] \wedge$

$\quad\quad \lambda z[(e)\text{INST}[[\text{AIM}(z)] \wedge [\text{HAVE}(z)(\iota y[(sp) \in (y)])]]]\Big]\Big]\Big]$

$\quad\quad \Big(\lambda P_2\Big[P_2\big(\iota x[[P_1(x)] \wedge [\text{CONSIST-IN}([\![\text{CP}]\!])(x)]]\big)\Big]\Big)$

$\quad \equiv$ DECL $\lambda w.\exists e\Big[[(e) \leq (w)] \wedge \Big[[\neg[(t) < (t^0)]] \wedge \Big[[\tau(e) \supseteq (t)] \wedge$

$\quad\quad \exists! x\big[[P_1(x)] \wedge [\text{CONSIST-IN}([\![\text{CP}]\!])(x)]\big] \wedge [(e)\text{INST}[[\text{AIM}(x)] \wedge$

$\quad\quad [\text{HAVE}(x)(\iota y[(sp) \in (y)])]]]\Big]\Big]\Big]$

In contrast to (32), where the embedded clause functions as modifier of the content noun *cel'* with the meaning AIM, the accommodated propositional subject in (41) functions as the argument of this noun in predicative function (compare the examples (31b) and (38a)). Nevertheless, in both cases, the embedded CP serves as accommodated predicate of a modifier semantically, namely as $\lambda x[\text{CONSIST-IN}([\![\text{CP}]\!])(x)]$.

As to the substance of the accommodation in (26) and (29), it deserves mentioning that the semantic functors = and CONSIST-IN are very abstract and thereby very similar to pleonastic entities.

Comparing DPs with an accommodated proposition as modifier like in (30) and corresponding copular clauses with a propositional subject and with a content noun as predicate like in (35a) and (38a), respectively, one observes that template (29) delivers modifiers of type $\langle et \rangle$, while the combination of (29) and the correlate (21) serves as nominalizer of propositions and delivers arguments of type $\langle et \langle t \rangle \rangle$.

2.4.2 Attitudinal verbs with incorporated content nouns

A look at doxastic verbs like *zweifeln an/bezweifeln/somnevat'sja v* 'doubt (about)' allows us to consider the syntactic and semantic types of their propositional internal argument.

(42) a. Peter {bezweifelt (es) / zweifelt daran}, dass die Erde rund ist.
          Peter doubts   it   doubts it   that DEF earth round is

                                                                    (German)

      b. Pëtr   somnevaetsja v tom, čto Zemlja krugla.   (Russian)
          Peter doubt   in it   that earth   round

      'Peter doubts (about it) that the Earth is round.'

In both languages, the embedded clause is of declarative nature. It has to be accompanied by the correlate with governing prepositions. As direct object of *bezweifeln* 'doubt', it can occur without a visible correlate.

In Zimmermann (2019a), I argue that attitudinal predicates embed propositions as in (43).

(43) a. Peter {meint   / hat die Meinung / ist der Meinung}, dass die Erde
          Peter believes has DEF opinion   is DEF opinion   that DEF earth
          flach ist. – {Was meinst du   / Welche Meinung hast du   / Welcher
          flat   is   what believe you   which opinion have you   of.which
          Meinung bist du}?   (German)
          opinion   are you

      b. Pëtr dumaet, čto Zemlja ploska. – Čto ty   dumaeš'?   (Russian)
          Peter believe that earth   flat   what you believe

      'Peter believes that the Earth is flat. What do you believe?'

The doxastic verb *meinen/dumat'* 'believe' and its periphrastic variants in (43a) are synonymous, and the periphrastic forms are semantically incorporated in the meaning of the verb. The propositional argument position is inherited and constitutes the propositional complement of the verb. This is shown in (44).

(44) $\llbracket\{meinen/dumat'\}\rrbracket = \lambda p.\lambda x.\lambda e\left[(e)\textsc{inst}\left[\textsc{have}(\iota y[[\textsc{belief}(y)] \wedge\right.\right.$

$$\left.\left.[\textsc{consist-in}(p)(y)]]\right)(x)\right] \in \langle st\langle e\langle et\rangle\rangle\rangle$$

Internal propositional complements of doxastic verbs are transparent for extractions out of the embedded clause. In cases where the propositional complement of doxastic verbs is accompanied by the correlate as in (45) = (42), we get an opaque DP-construction of semantic type $\langle\langle st\langle t\rangle\rangle t\rangle$, as shown in (46).

(45)   a. Peter bezweifelt es, dass die Erde rund ist.   (German)
        b. Pëtr somnevaetsja v tom, čto Zemlja krugla.   (Russian)
        'Peter doubts about it that the Earth is round.'

(46) $\textsc{decl}\lambda w.\exists e\left[[(e) \leq (w)] \wedge \left[[\neg[(t) \leq (t^0)]] \wedge \left[[\tau(e) \supseteq (t)] \wedge\right.\right.\right.$

$[(e)\textsc{inst}[\textsc{have}(\iota y[[\textsc{doubt}(y)] \wedge [\textsc{consist-in}(\iota z[[P_1(z)]\wedge$
$[(z) = (\lambda w'.\exists e'[[(e) \leq (w')] \wedge [[\neg[(t') \leq (t^0)]] \wedge [[\tau(e) \supseteq (t')]\wedge$

$[(e')\textsc{inst}[\textsc{round}(\iota x[\textsc{earth}x])]]]]])(y)]])(\textsc{peter})]]\left.\left.\left.\right]\right]\right]$

Here, the semantics of the doxastic verb embodies template (29) with the functor CONSIST-IN, whilst the correlate in this case is connected with the simpler type shift (26) with the identity functor =, namely in order to preserve the type of the embedded proposition (i.e. z, $p \in \langle st\rangle$).

3 Prospects

The present treatment of correlates is semantically flexible and reckons with two type shifts, (26) and (29), to embed a CP as a modifier. It was shown that nominalizing clauses is realized by a special determiner, the cataphoric correlate, which

introduces a modifier position. The approach presupposes multifunctional lexical heads and pronouns as well as different morphosyntactic and semantic types of clauses. As to the question whether there are propositional complements, I tried to show that at least verbs of thinking and saying take propositions of type $\langle st \rangle$ as their complements.

Many problems remain open for future research. In view of the fact that every study is dependent on a contemporary paradigm, it is desirable that it leaves enough room for clarifying unexplained phenomena. First of all, the linguistic description should be as explicit as possible. It should be shown

- which morphosyntactic features and semantic properties characterize the building stones of linguistic expressions;

- what combinatorial properties they have;

- how we account for multifunctionality of expressions and whether it can be reduced;

- which interdependencies exist between the different levels of representation;

- how much syntax is needed for the semantics;

- where zero elements should be substituted by corresponding templates and vice versa;

- what role the lexicon plays in the sound-meaning correlation;

- what insights regarding the embedding of propositions we can gain from other languages.

I hope to have shown that the nominal shells of embedded clauses teach us a lot.

Ilse Zimmermann

Abbreviations

1	first person	LOC	locative case
2	second person	NOM	nominative case
ACC	accusative case	PFV	perfective aspect
DAT	dative case	Q	question particle
DEF	definite article/determiner	REFL	reflexive marker
GEN	genitive case	SBJV	subjunctive
INF	infinitive	SG	singular
INS	instrumental case		

Acknowledgements

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