# A semantic solution to the problem of Hungarian object agreement

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**Abstract**    This paper offers a semantically-based solution to the problem of predicting whether a verb will display the *subjective conjugation* or the *objective conjugation* in Hungarian. This alternation correlates with the definiteness of the object, but definiteness is not a completely reliable indicator of the subjective/objective alternation, nor is specificity. A prominent view is that the subjective/objective alternation is conditioned by the syntactic category of the object, but this view has also been shown to be untenable. This paper offers a semantic solution: If the referential argument of a phrase is *lexically specified* as familiar/new, then the phrase bears the feature [+DEF]/[−DEF], and this feature governs the conjugations. The notions of novelty and familiarity are made precise using a compositional version of DRT in the context of a suitably large fragment of Hungarian, including local and non-local personal pronouns, demonstratives, definite and indefinite articles, quantifiers, wh-words, numerals, and possessives.

**Keywords**    Hungarian · Definiteness · Compositional DRT · Object agreement · Presupposition

## 1 Introduction

The use of the subjective and objective conjugations in Hungarian correlates well but imperfectly with the definiteness of the object. Generally speaking, the objective conjugation is used in the presence of a definite object, as in (1), and the subjective

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conjugation is used in the presence of an indefinite object, as in (2), and in the absence of an object, as in (3).[1]

(1)  Lát-om          a   madar-at.
     see-1SG.DEF the bird-ACC
     'I see the bird'

(2)  Lát-ok          egy madar-at.
     see-1SG.INDEF a    bird-ACC
     'I see a bird'

(3)  Vár-ok.
     wait-1SG.INDEF
     'I'm waiting'

Arguably definite noun phrases that trigger the objective conjugation include proper names, nominals headed by the determiners *a/az* 'the', *ez* 'this', *az* 'that', *melyik* 'which', *bármelyik,* 'whichever', *hányadik* 'which number', and *valamennyi* 'each', third person [−wh] personal pronouns (both overt and null), and reflexive and reciprocal pronouns. Noun phrases such as those headed by indefinite determiners like *néhany* 'some' and *sok* 'many', numerals, and the indefinite article *egy* 'a' generally trigger the subjective conjugation. But there are exceptions in both directions, notably the following.

   Person—which is not obviously related to definiteness—plays a role in the distribution of the objective conjugation. Third person pronouns, overt or null, trigger the objective conjugation, as expected:

(4)  Lát-ják         őt/őket.
     see-3PL.DEF him/them
     'They see them/them.'

(5)  Lát-om.
     see-1SG.DEF
     'I see it/him.'

But first and second person pronouns generally trigger the subjective conjugation:

(6)  Lát-nak         engem/téged/minket/…
     see-3PL.INDEF me/you/us/…
     'They see me/you/us/…'

One exception to this exception is when the subject is first person singular and the object is second person; then a special ending *-lak/-lek* is used:

(7)  Szeret-lek.
     love-1SG.OBJ2
     'I love you.'

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[1] The objective conjugation is indicated with DEF in the glosses; the subjective conjugation is indicated with INDEF.

Another exception to the exception is when the first or second person is reflexive or reciprocal; then the objective conjugation is used:

(8)  (Én) szeret-em      magam-at.
     I    love-3SG.DEF myself-ACC
     'I love myself.'

(9)  (Te) szeret-ed      magad-at.
     You love-2SG.DEF yourself-ACC
     'You love yourself.'

(10) Lát-ják       egymás-t.
     see-3PL.DEF each_other-ACC
     'They see each other.'

Thus the distribution of the objective conjugation displays a Swiss-cheese like pattern when it comes to person. The surprising cases are the first and second person non-reflexive, non-reciprocal pronouns; these are certainly definite, and under the simplistic hypothesis that the objective conjugation is governed by definiteness, they should trigger the objective conjugation.

Another case that one might be tempted to see as a case of a definite element failing to trigger the objective conjugation involves the determiner *minden* 'every', which generally does not trigger the objective conjugation:

(11) Eltitkol-ok          minden találkozás-t.
     keep.secret-1SG.INDEF every    meeting-ACC
     'I keep every meeting secret.'

Like its English counterpart, *minden* could be classified as definite on the grounds that it is incompatible with the existential construction:

(12) *Van minden könyv.
      is   every   book
      'There is every book.'

If we take this as a diagnostic of definiteness, then *minden* is an example of a definite determiner that does not trigger the objective conjugation. Alternatively, we could view the existential construction as a diagnostic of some property other than definiteness, such as specificity (Szabolcsi 1994), and maintain that *minden* is, for example, specific but indefinite.

This move is supported by the fact that *minden* does not pass Löbner's (2000) tests for definiteness. If we take 'term-hood' (being logically of type $e$) as what it means to be 'definite', then definites are predicted to have certain logical properties, including what Löbner (2000) calls *consistency* and *completeness*:

- consistency: X + (not-P) ⟹ not(X+P)
- completeness: not-(X+P) ⟹ X + (not-P)

In English, *everybody* satisfies the consistency criterion because *Everybody didn't come* implies *Not everybody came*. But it does not satisfy the completeness criterion because *Not everybody came* does not imply *Everybody didn't come*. The same holds

for *minden* 'every' in Hungarian. So *minden* is not definite according to this method of evaluating definiteness.

If *minden*-phrases are indefinite, their behavior in cases like (11) is as expected. However, then it seems that we would need to cope with the existence of *indefinite* noun phrases that *do* trigger the objective conjugation, because with a possessed noun, *minden* does trigger the objective conjugation:

(13)   Ismer-em        minden titk-od-at.
       know-1SG.DEF every    secret-2SG.POSS-ACC
       'I know your every secret.'

Alternatively, we must find a notion of definiteness that draws the line between (11) and (13). According to Bartos (2001, p. 314), "there is absolutely no definiteness or specificity difference" between the two examples in (14) (Bartos 2001, ex. (6)).

(14)   a.  Eléget-em    a től-ed        kapott   minden level-et.
           burn-1SG.DEF the from-2SG.POSS received every    letter-ACC
           'I burn every letter received from you.'
       b.  Eléget-ek        minden től-ed        kapott   level-et.
           burn-1SG.INDEF every    from-2SG.POSS received letter-ACC
           'I burn every letter received from you.'

Regarding these examples, Szabolcsi (1994, p. 210) writes: "Whereas the presence of the article is required in one of the examples and prohibited in the other, this makes no difference for interpretation." If Bartos and Szabolcsi are right, then either both examples in (14) are definite (in which case we have a definite noun phrase failing to trigger the objective conjugation), or both examples are indefinite (in which case we have an indefinite noun phrase triggering the objective conjugation).

The complexities of *minden* 'every' aside, we certainly must accept the existence of indefinite noun phrases that trigger the objective conjugation. Possessed noun phrases with the determiner *néhány* 'some' can be used with the objective conjugation. The subjective conjugation is reported to be an option here as well, as we might expect. (This observation holds also for third person possessors.)

(15)   Ismer-em/Ismer-ek               néhány titk-od-at.
       know-1SG.DEF/know-1SG.INDEF some    secret-2SG-ACC
       'I know some secrets of yours.'

(16)   Lát-om/Lát-ok              valaki-d-et.
       see-1SG.DEF/see-1SG.INDEF someone-2SG-ACC
       'I see someone of yours.'

*Néhány* phrases are clearly indefinite. They can be used in existential constructions:

(17)   Van néhány könyv-em       itt   Pest-en.
       is   some   book-POSS.1SG here Pest-in
       'There are some of my books here in Pest.'

And as Löbner (2000) mentions, existential determiners do not pass the 'consistency' test; *Some of my books are not here* does not imply *It is not the case that some of my books are here* (in fact, it conversationally implicates the opposite).

Even with the indefinite article *egy,* we can have the objective conjugation when the object is possessed (Gerland and Ortmann 2009):

(18)     Egy könyv-em-et       /-ünk-et         olvas-om.
           a     book-POSS.1SG-ACC /-POSS.1PL-ACC read-1SG.DEF
           'I'm reading a book of mine/ours.'

The object triggers the objective conjugation even when the possessor and the possessum are both indefinite, as illustrated by the following example, where the possessor is in dative case (É. Kiss 2002, p. 173, ex. (50)):

(19)     Csak egy diák-nak     két dolgozat-á-t        talál-t-a.
           only  one student-DAT two paper-3SG.POSS-ACC find-PAST-3SG.DEF

           jutalom-ra méltón-ak a   zsűri.
           prize-to    worthy.PL the juri.NOM

           'The jury found only one student's two papers worthy of a prize.'

Finally, although some wh-words trigger the subjective conjugation, as in (20) and (21), there are some wh-words that trigger the objective conjugation, as in (22) and (23):

(20)     Hány-at        kér-sz?
           how_many-ACC want-2SG.INDEF
           'How many do you want?'

(21)     Mi-t       kér-sz?
           What-ACC want-2SG.INDEF
           'What do you want?'

(22)     Hányadik-at       kér-ed?
           which_number-ACC want-2SG.DEF
           'Which one do you want?'

(23)     Melyik-et   kér-ed?
           which-ACC want-2SG.DEF
           'Which one do you want?'

It has been argued that wh-words are indefinite (Haida 2007, 2008), although wh-words like *which* are known to behave differently from those like *what* (Pesetsky 1987).

In short: it is not exactly definiteness as commonly understood that governs the distribution of the objective conjugation. Instead, at this point the reader may reasonably be entertaining the hypothesis that specificity is the relevant factor.

But specificity does not make the right cut either. There are specific indefinites that do not trigger the objective conjugation. These include scopally specific indefinites, as in (24) (Coppock and Wechsler 2012, ex. (52)).

(24)     Minden nap egy görög énekes-t     hallgatt-ak/*-ák.
           every   day a   Greek singer-ACC listened-3PL.INDEF/-3PL.DEF

           Máriá-nak  hív-ják.
           Maria-DAT call-3PL.DEF

           'Every day, they listened to a Greek singer. Her name is Maria.'

The indefinite object *egy görög énekest* 'a Greek singer' must be specific, because the subsequent discourse identifies the singer by name. Some partitives, which are specific in Enç's (1991) sense, also trigger the subjective conjugation (Chisarik, 2002, p. 100, exx. (15), (16)):

(25)  A  regény-ek közül       Péter el-olvas-ott              négy-et.
      the novel-PL  from-among Peter PERF-read-3SG.PAST.INDEF four-ACC
      'Of the novels, Peter read four.'

(26)  A  cukor-ból  Anna tett              a  kávé-já-ba          valamennyi-t.
      the sugar-ELAT Anna put.3SG.PAST.INDEF the coffee-POSS.3SG-into some-ACC
      'Of the sugar, Anna put some in her coffee.'

In the context of a discussion on whether the objective conjugation should be viewed as an incorporated clitic pronoun or an agreement marker, Coppock and Wechsler (2012) investigate some other semantic factors that have been proposed to play a role in governing the distribution of clitic doubling, including descriptive content (Rizzi 1986), topicality (Kallulli 2000), and 'strong anaphoricity' (López 2009). They conclude that none of them draws the line in precisely the right place.

A dominant view on what conditions the use of the objective conjugation is what Coppock and Wechsler (2012) refer to as the *DP-hood hypothesis* (Bartos 2001, building on Szabolcsi 1994, adopted in É. Kiss 2000; 2002, pp. 49, 151–157):

(27)  *DP-hood hypothesis*
      The objective conjugation is used if and only if the object is a DP (or larger).

Coppock and Wechsler (2012) point out several empirical challenges for this view. First, some pronouns, which are DPs, trigger the subjective conjugation. As laid out above, these include first and second person non-reflexive pronouns and some wh-words.

Second, there are some noun phrases with dative possessors that some speakers find acceptable with the subjective conjugation:

(28)  %  Olvas-t-unk          Péter-nek (öt) vers-é-t.
      read-PAST-1PL.INDEF Peter-DAT five poem-POSS-ACC
      'We read five poems by Peter.'

Regardless of how the syntax of dative possessor is analyzed, the object phrase must be at least the size of a DP.

Third, complement clauses of bridge verbs (those which allow extraction) trigger the objective conjugation:

(29)  János      mond-t-a             [ hogy holnap    érkez-ik          ]
      John.NOM say-PAST-3SG.DEF   that tomorrow arrive-3SG.INDEF
      'John said that he is arriving tomorrow.'

As Coppock and Wechsler (2012) argue in detail, these complement clauses are CPs rather than DPs.

The final, and perhaps most serious, problem with the DP-hood hypothesis is that there is at least one pair of determiners such that one (*valamennyi* 'each') triggers the objective conjugation and the other (*minden* 'every') does not:

(30)  Eltitkol-om          valamennyi találkozás-t.
      keep.secret-1SG.DEF each        meeting-ACC
      'I keep each meeting secret.'

(31)  Eltitkol-ok          minden találkozás-t.
      keep.secret-1SG.INDEF every    meeting-ACC
      'I keep every meeting secret.'

According to the DP-hood hypothesis, *valamennyi találkozást* 'each meeting' must be analyzed as a DP (or larger), and *minden találkozást* 'every meeting' must be analyzed as smaller than a DP. But Coppock and Wechsler (2012) show carefully that *minden* and *valamennyi* have the same syntactic category.

Coppock and Wechsler (2012) argue, in the context of a larger argument that the objective conjugation suffixes are agreement markers rather than pronouns, that Hungarian makes use of a purely formal feature [+DEF]. Essentially they claim that the distribution of the objective conjugation cannot be predicted on semantic or syntactic grounds. The objective conjugation is historically associated with topicality, hence definiteness, but synchronically [+DEF] has no semantic content according to this view, and the set of triggers is an arbitrary hodge-podge. While such arbitrariness could in principle exist, to say this is essentially to give up on the problem from a synchronic perspective.

Here, I propose a principled solution to the problem, one which is grounded in semantics and does not suffer from the problems of the DP-hood hypothesis. In a nutshell, and simplifying just a bit, the claim is as follows:

(32)  *Lexical Familiarity Hypothesis*
      If the referential argument of a phrase is *lexically specified* as familiar, then the phrase triggers the objective conjugation.

This will be made precise using a compositional version of Discourse Representation Theory, to be accompanied by a fragment of Hungarian containing the relevant lexical entries and composition rules. Briefly, this will account for the data as follows:

- The person effect can be explained on the grounds that first and second person non-reflexive pronouns are not anaphoric but rather purely indexical, unlike third person pronouns and first and second person reflexive and reciprocal pronouns.
- Specific determiners (e.g. the definite article, *each*) contribute [+DEF] because they presuppose existence.
- Possessive morphemes require that the referential argument (the possessee) is anaphoric and therefore contribute a [+DEF] feature.
- When a possessive phrase is combined with an indefinite determiner, the phrase receives [−DEF] from the determiner, and lexical feature specifications clash. In these cases Hungarian speakers seem to lose their intuitions, and this is precisely what we would expect from an account based on lexical feature specifications rather than one based on the semantics of the noun phrase as a whole.
- Partitives and *minden* 'every' phrases are generally used with non-empty domain presuppositions, but this is not lexically specified. These items do not trigger the objective conjugation because there is no lexical host for the DEF feature.

So the [+DEF] feature is grounded in familiarity, but some things are familiar yet not [+DEF]. Seen from this perspective, object agreement in Hungarian is quite similar to accusative-marking in Turkish: both are sensitive to familiarity. However, in Hungarian this familiarity must come from the lexical items.

## 2 Proposal

### 2.1 Principles

According to the *Lexical Familiarity Hypothesis,* which I advocate here, the phrasal category of the nominal does not determine the verb conjugation. Rather, choice of conjugation follows from the definiteness feature of the object phrase, which is determined by the lexical items heading its extended functional projection.[2]

The definiteness feature of a lexical item is determined by the principles of lexical definiteness and indefiniteness. The former is as follows.

(33)   *Principle of lexical definiteness*
       A lexical item is [+DEF] if it specifies that its referential argument is familiar.

(34)   *Lexically-specified familiarity*
       A lexical item specifies that its referential argument is familiar if it requires either (i) that the referential argument is among the discourse referents in the common ground, or (ii) that the referential argument is connected to a discourse referent with such a requirement via a part-whole relation.

The notion 'referential argument' may be defined as follows:

(35)   *Referential argument*
       The referential argument of a phrase is the discourse referent $u$ such that: when the phrase combines an expression denoting property $P$, $P$ is predicated of $u$.

If the DP is type $e$, the referential argument is the semantic value of the DP. If the DP is a quantifier, then the referential argument is the quantified variable.

Formally, the requirement that a discourse referent be established in the common ground entails that the discourse referent is in the universe of a presupposition-DRS of the type described by van der Sandt (1992). Clause (ii) means that familiarity is not so strict as to require prior introduction of the discourse referent itself into the discourse; familiarity as I use it can be understood as partitive specificity (cf. Farkas 2002) or D-linking (Pesetsky 1987). Roberts's (2003) notion of 'weak familiarity' is slightly more inclusive than the notion of familiarity as defined here, but I am not presently aware of any reason not to use hers instead. Crucially, 'familiarity' is broader than 'anaphoricity': Familiar discourse referents do not necessarily have a linguistic antecedent, so long as the discourse referent can be found in the associated context.

The distribution of [−DEF] is governed by a separate principle:

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[2] I use 'extended (functional) projection' in Grimshaw's (1991) sense (cf. the notion of 'functional domain' in LFG; Bresnan 2001).

(36)   *Principle of lexical indefiniteness*
       A lexical item is [−DEF] if it lexically specifies its referential argument as new.

(37)   *Lexically-specified novelty*
       A lexical item specifies its referential argument as new if it introduces the discourse referent into the common ground.

The notion of being introduced into the common ground is understood formally as appearance in the universe of a non-presupposed DRS in the semantic value of a lexical item as specified in the lexicon.

   The definiteness features of a phrase are determined by the definiteness features of its parts. Specifically, agreement features are passed up along an extended functional projection according to the following principle:

(38)   *Agreement feature inheritance principle*
       a. If $\alpha$ is any phrase (e.g. DP) and $\beta$ is its head daughter (e.g. D), then all of $\beta$'s agreement features are agreement features of $\alpha$.
       b. If $\alpha$ is a functional category (e.g. DP) and $\beta$ is its complement daughter (e.g. NP), then all of $\beta$'s agreement features are agreement features of $\alpha$.

For example, if a DP has a head daughter D and a complement daughter NP, then the DP as a whole will inherit the definiteness features of both D and NP. Because it is the syntax that regulates the distribution of [+DEF] above the word level, it can happen that the semantic properties of the phrase as a whole do not match the semantics of the [+DEF] feature. Furthermore, because the distributions of [+DEF] and [−DEF] are governed by two independent sub-principles, it can happen that a phrase has both or neither. I suggest that both types of examples are attested.

   The definiteness features of the object phrase determine which conjugations are possible:

(39)   *Conjugation Principle*
       a. The objective conjugation may be used only when the object phrase is [+DEF].
       b. The subjective conjugation may be used when there is no object, or when the object phrase is either unspecified for definiteness or [−DEF].

Typically, phrases will bear either [+DEF] or [−DEF] or neither, in which case only one conjugation will be possible (objective or subjective). But if the phrase inherits [+DEF] from one source (say, the possessive suffix on an N head) and [−DEF] from another (say, the D head), then both conjugations are predicted to be possible.

## 2.2 Framework

The semantic framework that I will use is a version of Compositional DRT (Muskens 1996), augmented with a mechanism for stating the kind of presuppositional constraints envisioned by van der Sandt (1992), as in versions of λ-DRT that have this expressive power (Kohlhase et al. 1996; Bos 2003). The dynamic nature of the framework and the expressibility of presuppositions are important because presuppositional

constraints play a crucial role. It is also important that the framework allow for compositional derivation of meanings, so that the individual contributions of lexical items can be clearly identified.

The meaning of a typical declarative sentence in this framework is a Discourse Representation Structure (DRS), and DRSs are binary relations among assignments, as in Muskens (1996). Assignments are functions from discourse referents to individuals. I use $t$ as the type of DRSs, and $e$ as the type of discourse referents.

In this framework, semantic representations may be *intermediate* DRSs, with potentially unresolved presuppositions (van der Sandt 1992). In general, they will be represented in the following linearized box notation:

$$[x_1, \ldots, x_n : \gamma_1, \ldots, \gamma_m \gg K]$$

where $x_1, \ldots, x_n$ is a set of discourse referents making up the universe of the DRS, $\gamma_1, \ldots, \gamma_m$ are the conditions of the DRS (sets of assignments), and $K$ is a DRS corresponding to the unresolved presuppositions (van der Sandt 1992). I omit '$\gg K$' when there are no presuppositions.

The linearized box notation is an abbreviation for a binary relation among assignments.

(40)   *Abbreviation: Boxes*
       $[x_1, \ldots, x_n : \gamma_1, \ldots, \gamma_m \gg K]$ is short for
       $\{\langle a, a' \rangle \mid a[x_1, \ldots, x_n]a'$ and $a' \in \gamma_1 \cup \ldots \cup \gamma_m$ and $\langle a, a \rangle \in K\}$

where $a[x_1, \ldots, x_n]a'$ means that $a$ and $a'$ differ at most in the value they assign to $x_1, \ldots, x_n$. This yields the same result as Muskens's (1996) semantics for DRSs when there are no presuppositions. The condition $\langle a, a \rangle \in K$ means that presuppositions are conditions on the input context, as usual in dynamic semantics (Heim 1983; Beaver 2001, i.a.).

Notice that rather than interpreting DRSs, we use the DRS language as an abbreviatory metalanguage here. The conditions occurring within boxes are abbreviations for sets of assignments, defined as follows:

(41)   *Abbreviations for conditions*
       a.   $R_i(\delta_1, \ldots, \delta_n)$ is short for
            $\{a \mid \langle i, a(\delta_1), \ldots, a(\delta_n) \rangle \in R\}$
       b.   $\delta_1 = \delta_2$ is short for
            $\{a \mid a(\delta_1) = a(\delta_2)\}$
       c.   $\neg K$ is short for
            $\{a \mid \neg \exists a' : \langle a, a' \rangle \in K\}$
       d.   $K_1 \vee K_2$ is short for
            $\{a \mid \exists a' : \langle a, a' \rangle \in K_1$ or $\langle a, a' \rangle \in K_2\}$
       e.   $K_1 \Rightarrow K_2$ is short for
            $\{a \mid \forall a' : $ if $\langle a, a' \rangle \in K_1$ then $\exists a'' : \langle a', a'' \rangle \in K_2\}$

Note that in simple conditions, defined in (41a), the possible world argument of a relation is distinguished using a subscript, and that possible worlds are arguments of relations but are not manipulated by assignments. I will omit the possible world argument when intensionality is not an issue.

The glue linking sentences together in a text is the merge operation. The merge of DRSs $K_1$ and $K_2$ is written $K_1 \oplus K_2$. This can be expanded as follows:

(42)   *Abbreviation: Merge*
       $K_1 \oplus K_2$ is short for
       $\{\langle a, a' \rangle \mid \exists a'' : \langle a, a'' \rangle \in K_1 \text{ and } \langle a'', a' \rangle \in K_2\}$

Intuitively, the merge is the result of updating $a$ first with $K_1$, yielding an intermediate assignment $a''$, and then with $K_2$, yielding $a'$.

Functional abstraction is also possible in this framework, as in Muskens (1996). For example, the common noun *man* denotes a function from discourse referents to DRSs:

$$\lambda u \, . \, [: \text{MAN}(u)]$$

The semantic representation of a branching non-terminal node is typically obtained via Functional Application from the daughters. (Other rules such as Predicate Modification (Heim and Kratzer 1998) may be added to the stock of composition rules, but Functional Application is the only one necessary for our purposes here.) However, I assume that the composition process also allows for binding and accommodation of presuppositions according to the constraints laid out by van der Sandt (1992) or some variant thereof.

2.3 Lexical entries

*2.3.1 Third person pronouns*

My proposed semantics for the gender-neutral third person pronoun *ő* 'he/she' is as follows:[3,4]

(43)   $ő_{\langle \langle e,t \rangle, t \rangle}$ 'he/she' $\rightsquigarrow$
       $\lambda p \, . \, [: \gg [\mathbf{u} :]] \otimes p(\mathbf{u})$

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[3] I assume, following Pollard and Sag (1994), that person, number and gender features are properties of discourse referents rather than of phrases.

[4] One aspect of this analysis for which I must apologize is that pronouns have the type of a quantifier, despite the fact, pointed out by Heim and Kratzer (1998) and Löbner (2000), that such phrases behave logically as terms. Pronouns will, however, denote principal ultrafilters here, which also behave logically as terms, so the present analysis is consistent with those observations. Furthermore, they can be shifted into type *e* terms via the LOWER operation of Partee (1986). These remarks also apply to definite descriptions.

Boldface on the discourse referent **u** indicates that **u** is a *placeholder* for a discourse referent, which will be instantiated as a real discourse referent upon lexical insertion.[5] For example, in the sentence *Ő vár* 'He is waiting', it might be instantiated as $u_1$:

(44)
$$[: \text{WAIT}(u_1) \gg [u_1 :] \,]$$

$$\lambda p \,.\, [\, : \gg [u_1 :] \,] \otimes p(u_1) \qquad \lambda u \,.\, [\, : \text{WAIT}(u)]$$

$$\underset{\substack{| \\ \acute{o}_{\langle\langle e,t\rangle,t\rangle} \\ \text{'he/she'}}}{} \qquad\qquad \underset{\substack{| \\ v\acute{a}r_{\langle e,t\rangle} \\ \text{'is waiting'}}}{}$$
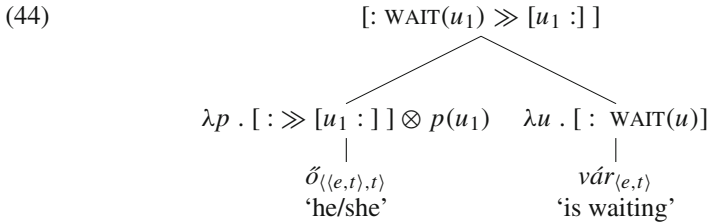
The crucial aspect of this lexical entry is that the referential argument **u** occurs in the universe of a presupposed DRS. In other words, pronouns are anaphoric. This means that they lexically specify familiarity, so third person pronouns are correctly predicted to bear [+DEF] and therefore trigger the objective conjugation.

### 2.3.2 First and second person pronouns

First and second person non-reflexive pronouns require no antecedent. They can be used in a discourse without any prior introduction. Formally, they can be mapped to the 'indexical discourse referents' *sp* and *ad* (Kamp 2010).[6]

(45)   $\acute{e}n_e$ 'I' $\rightsquigarrow$
       *sp*

(46)   $\acute{t}e_e$ 'you.SG' $\rightsquigarrow$
       *ad*

Thus non-reflexive first and second person pronouns are *not anaphoric*. This correctly predicts that first and second person pronouns do not trigger the objective conjugation, as shown in (6).

On the other hand, first and second person reflexive and reciprocal pronouns require an antecedent. Their semantic projection has the same content as a third person pronoun; they differ only syntactically in that they have different agreement features and require a local antecedent. This correctly predicts that, as shown in (8), (9), and (10),

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[5] Fundamentally, lexical entries may be viewed as predicates of nodes, as in van Leusen and Muskens (2003). From that perspective, the notion of a place-holder for a discourse referent corresponds to existential quantification over discourse referents. For example, the lexical entry for a third person pronoun would correspond to the property that holds of a node $k$ iff $\exists u \in D_e[\sigma(k) = \lambda P \in D_{\langle e,t\rangle} \,.\, P(u) \otimes [:\gg [u :]]]$, where $\sigma$ is a function that projects syntactic nodes onto meanings.

[6] The story for indexicals is more complicated, if the recent arguments for their essentially *de se* nature are on the right track (Wechsler 2010; Kamp 2010, 2011). According to these views, a first person singular pronoun realizes the speaker's notion of him- or herself, and a second person pronoun should be interpreted by a hearer as a representation of him- or herself. This requires augmenting our theory of semantic content with the thoughts being expressed by speakers and constructed by hearers, a project that would take us too far afield here. The lexical entries that I have given capture the "participant-neutral" content of these indexicals (Kamp 2010, 2011).

they trigger the objective conjugation. In this way, we at least partially account for the puzzling Swiss cheese-like pattern in the distribution of the objective conjugation.[7]

### 2.3.3 Demonstratives

Demonstrative pronouns, both deictic and anaphoric, trigger the objective conjugation.

(47)  [pointing to a pastry]
      Az-t      kér-em.
      that-ACC want-1SG.DEF
      'I want that.'

The demonstrative pronoun *az* in this example is used deictically rather than anaphorically, so this is a prima facie counterexample to the claim that the objective conjugation requires familiarity.[8] Nevertheless, I suggest, drawing on the ideas of Kamp (2010), that it comes with a familiarity requirement. As in English, the demonstrative pronoun *az* 'that' also has an anaphoric use; I suggest that the deictic use and the anaphoric use both involve reference to a discourse referent that has been made salient. In the case of a demonstrative accompanied by a gesture, the gesture serves to make a particular entity cognitively salient, and to enter it into the set of entities that have been introduced into the discussion. The gesture, in effect, serves the same purpose as an indefinite, introducing the entity into the discourse. The introduction makes a discourse referent available, and this serves in effect as the 'antecedent' for the demonstrative. The demonstrative 'picks up' this referent in the same way that it 'picks up' the discourse referent corresponding to its antecedent. Hence the relevant notion of familiarity draws a line between what Kaplan (1978) calls 'pure indexicals', which do not require an accompanying gesture, and demonstratives, which do.

### 2.3.4 Definites

The analysis of *a(z)* 'the' that I propose is as follows:[9]

(48)  $a(z)_{\langle\langle e,t\rangle,\langle\langle e,t\rangle,t\rangle\rangle}$ 'the' $\rightsquigarrow$
      $\lambda p . \lambda q . [ : \gg [\mathbf{u} : \mathbf{u} = \Sigma_{u'}([u' :] \otimes p(u'))]] \otimes q(\mathbf{u})$

I follow Kamp and Reyle (1993), Kamp et al. (2011), and Yee (2011) in assuming that a definite picks up the maximal satisfier of the predicate $p$, which is captured by the expression $\Sigma_{u'}([u' :] \otimes p(u'))]$.

Again, bold-face in (89) indicates a placeholder for a discourse referent. In an actual example such as *Az ember vár,* 'The man is waiting', this would be instantiated as a particular discourse referent such as $u_1$:

---

[7] I assume that the *-lak/-lek* form (cf. example (7)) takes precedence when the subject is first person singular and the object is second person, obviating the subjective conjugation, which would normally occur there.

[8] Thanks to Sebastian Löbner for this observation.

[9] The definite determiner has two forms, *a* and *az,* chosen depending on whether the following words begins with a vowel or a consonant.

(49)
$$[: \text{WAIT}(u_1) \gg [u_1 : u_1 = \Sigma_{u'}([u' : \text{MAN}(u'))] \,]]$$

$$\lambda q \,.\, [\,: \gg [u_1 : u_1 = \Sigma_{u'}([u' : \text{MAN}(u'))]]] \otimes q(u_1)$$

$$\lambda u \,.\, [\,: \text{WAIT}(u)]$$
|
*vár*$_{\langle e,t \rangle}$
'is waiting'

$$\lambda p \,.\, \lambda q \,.\, [\,: \gg [u_1 : u_1 = \Sigma_{u'}([u' :] \otimes p(u'))]] \otimes q(u_1)$$
|
*az*$_{\langle\langle e,t\rangle,\langle\langle e,t\rangle,t\rangle\rangle}$
'the'

$$\lambda u \,.\, [\,: \text{MAN}(u)]$$
|
*ember*$_{\langle e,t \rangle}$
'man'

The crucial feature to notice about this analysis is that the definite article imposes a familiarity requirement on the referential argument (**u**). The definite article therefore passes [+DEF] up to the DP it heads.

Familiarity must be understood here in a broad sense, one that includes givenness purely on the basis of world knowledge. The definite subject in, for example, *The most beautiful woman in the world is coming to my house for dinner tonight* does not require prior introduction into the discourse of a woman satisfying that description, and non-anaphoric definites involving superlatives *do* trigger the objective conjugation in Hungarian:

(50)  Hogy hív-ják     a  leg-szebb        lány-t   aki-t    ismer-tek?
      how   call-3PL.DEF the most-beautiful.most girl-ACC who-ACC know-2PL.INDEF
      'What is the name of the most beautiful girl you know?'

We have *hívják* (objective conjugation) rather than *hívnak* (subjective) in this example, and yet this sentence would normally be uttered in contexts where the referent has not already been made salient in the discourse. I assume, drawing on Roberts 2003, that discourse referents are accommodated with ease in cases where the existence of a unique entity satisfying the description is entailed by the (local) context.

### 2.3.5 Indefinite descriptions

Indefinite descriptions, in contrast, are analyzed as follows:

(51)  *egy*$_{\langle\langle e,t\rangle,\langle\langle e,t\rangle,t\rangle\rangle}$ 'a' $\rightsquigarrow$
      $\lambda p \,.\, \lambda q \,.\, [\mathbf{u} :] \otimes p(\mathbf{u}) \otimes q(\mathbf{u})$

Upon lexical insertion, the placeholder **u** will be instantiated as an actual discourse referent such as $u_1$, and the determiner will combine with a common noun and a verbal predicate in the following manner:

(52)
$$[u_1 : \text{MAN}(u_1) \wedge \text{WAIT}(u_1)]$$

$\lambda q \; . \; [u_1 : \text{MAN}(u_1)] \otimes q(u_1) \qquad \lambda u \; . \; [\; : \; \text{WAIT}(u)]$

*egy ember*            *vár*

'a man'            'is waiting'

Because the referential argument is placed into the universe of a DRS that is part of ordinary at-issue content, *egy*-phrases are [−DEF]. This correctly predicts that *egy*-phrases typically occur with the subjective conjugation, although not always; exceptions arise in the presence of possessives, which will be discussed in Sect. 2.3.10.

*2.3.6 Oblique partitives and numerals*

Like *egy* 'one/a', numerals like *négy* 'four' are indefinite, introducing a new discourse referent for the referential argument:

(53)  $\text{four}_{\langle\langle e,t\rangle,\langle\langle e,t\rangle,t\rangle\rangle} \rightsquigarrow \lambda p \; . \; \lambda q \; . \; [\mathbf{u} : |\mathbf{u}| = 4] \otimes p(\mathbf{u}) \otimes q(\mathbf{u})$

This predicts that phrases headed by numerals are indefinite.

In Turkish, use of morphological accusative case marking is conditioned by specificity, and can disambiguate between a partitive and a non-partitive interpretation of NPs with cardinal determiners. In a context in which "Several children entered my room" has just been uttered, the accusative object in (54a) refers to two girls who are among the children mentioned, while the unmarked object in (54b) refers to two new girls:

(54)  a.  Ikı  kız-ı  tanıyordum.
           two girl-ACC know.1SG.PAST
           'I knew two (of the) girls.'
      b.  Ikı  kız tanıyordum.
           two girl know.1SG.PAST
           'I knew two girls.'

On Enç's analysis, a specific indefinite must establish a new discourse referent (in accordance with Heim's (1982) non-familiarity condition on indefinites), but it is *related* to previously established referents. "In contrast, the discourse referent of a nonspecific indefinite is further required to be *unrelated* to previously established referents" (Enç 1991, p. 8). When a discourse referent is related to a previously established referent, it is specific, and therefore yields accusative case.

The Hungarian objective conjugation differs from accusative case marking in Turkish in this respect. Recall example (25), repeated here:

(55)  A  regény-ek közül  Péter elolvas-ott  négy-et.
      the novel-PL  from_among Peter read-3SG.PAST.INDEF four-ACC
      'Among the novels, Peter read four.'

We can account for the possibility of the subjective conjugation here under the assumption that the head of the extended functional projection is the numeral *négy* 'four', rather

than *regények* 'novels'. This assumption is supported by the fact that the accusative case marker goes on the numeral rather than *regények* 'novels', as Chisarik (2002) points out.

It is controversial whether the head of a partitive expression such as *two of the novels* is the numeral *two* or the noun *novels*. According to i Girbau (2010), partitives such as English *two of the novels* should be distinguished from expressions such as *two among the novels*. The head of the former, according to i Girbau, is *novels,* whereas the head of the latter is *two*. If this is right, the question becomes whether (55) exemplifies the former or the latter type. One characteristic of the *among* construction is that splitting between the PP and the numeral is possible. As shown in (25), this is possible for the type of partitive we are looking at. Another characteristic of *among*-type constructions is that they contain lexical rather than functional prepositions, and *közül* 'among' can be characterized as a lexical preposition. Thus *közül* partitives seem to be of the *among*-type, for which even i Girbau analyzes the numeral as the head.

Since the numeral is the head, [−DEF] is passed up to the phrase as a whole under the Agreement Feature Inheritance Principle, and the result is that the phrase is indefinite. Here we have a mismatch between the familiarity of the referential argument as specified by the head noun and the familiarity of the referential argument as specified by the phrase as a whole, and the lexical specification "wins", so to speak, in Hungarian.

### 2.3.7 Quantifiers

For the quantifiers *minden* 'every' and *néhány* 'some', we can assume the following lexical entries, following Muskens (1996):

(56)  *minden/every* $_{\langle\langle e,t\rangle,\langle\langle e,t\rangle,t\rangle\rangle}$  $\rightsquigarrow$  $\lambda p \,.\, \lambda q \,.\, [: ([\mathbf{u}:] \otimes p(\mathbf{u})) \Rightarrow q(\mathbf{u})]$

(57)  *néhány/some* $_{\langle\langle e,t\rangle,\langle\langle e,t\rangle,t\rangle\rangle}$  $\rightsquigarrow$  $\lambda p \,.\, \lambda q \,.\, ([\mathbf{u}:] \otimes p(\mathbf{u}) \otimes q(\mathbf{u}))$

In contrast, *each* is presuppositional:

(58)  *valamennyi/each*$_{\langle\langle e,t\rangle,\langle\langle e,t\rangle,t\rangle\rangle}$  $\rightsquigarrow$  $\lambda p \,.\, \lambda q \,.\, [: [\mathbf{u}:\mathbf{u} \in \mathbf{y}] \Rightarrow q(\mathbf{u})]$
$$\gg [\mathbf{y}:\mathbf{y} = \Sigma_{y'}([y':] \otimes p(y'))]$$

The presuppositional part requires that there is an entity $y$ which is the sum of all entities with property $p$. It is the individual members of $y$ over which *valamennyi* 'each' quantifies, as encoded by the condition $\mathbf{u} \in \mathbf{y}$ in the restrictor DRS.

It is crucial for our account that *valamennyi* 'each' is lexically presuppositional while *minden* 'every' is not. The referential argument of *valamennyi* 'each' is $\mathbf{u}$, which is specified as familiar, because the existence of $\mathbf{y}$ is presupposed, and $\mathbf{u}$ is always a part of $\mathbf{y}$. Hence *each* is lexically [+DEF]. *Minden* 'every' has no presuppositions, so it is not [+DEF]. These assumptions correctly capture the fact that *valamennyi* 'each' triggers the objective conjugation, as shown above in (30), while *minden* 'every' does not, as shown in (11). They are also supported by the fact that *valamennyi* is not used in generic sentences, while *minden* is, just as with English *each* vs. *every*.

(59)  Every/?Each girl loves to dance.

(60)  Minden/??Valamennyi lány szeret          tancolni.
      every/each          girl  love.3SG.INDEF dance.INF
      'Every/Each girl loves to dance.'

According to one of my informants, the variant of (60) with *valamennyi* requires the prior introduction of a set of girls and quantifies over that set. The same is true for *mindegyik* 'each and every' which also triggers the objective conjugation.

It must be acknowledged that *every* has been argued to be presuppositional, on the grounds that it gives rise to so-called 'empty domain effects' whereby *every*-sentences are judged odd when the domain is empty. For example, the following sentence is odd because there are no negative numbers greater than 5:

(61)     #Every negative number greater than 5 is prime.

Further support for this idea comes from the fact that *every*-phrases are accusative-marked in Turkish (Özge 2012). But Lappin and Reinhart (1988) and Abusch and Rooth (2002) argue convincingly that empty domains are compatible with the lexically specified meaning and presuppositional requirements of *every,* and that empty domain effects arise essentially through Gricean reasoning. Thus, while *every*-phrases are typically used when speakers presuppose a non-empty domain, this presupposition is not part of the lexical meaning of *every,* so *minden* 'every' does not bear the [+DEF] feature.

In a similar way, epistemically specific indefinites with for example *egy* 'a' are used when the speaker has in mind a particular individual, and expects the hearer to recognize this; in this sense, they are presuppositional. But this presupposition arises in context, and not as a result of the lexical specification for the determiner. I assume that a determiner like *egy* 'a' has a lexical entry very much like that of *néhány* 'some' given above, crucially in that it does not presuppose existence for the referential argument.

### 2.3.8 Wh-words

Recall that some of the wh-determiners, including *hány* 'how many' and *mi* 'what', behave as indefinite determiners.

(62)     Mi-t          akar-sz?
         what-ACC want-1SG.INDEF
         'What do you want?'

Others, including *hányadik* 'which number', and *melyik* 'which', behave as definites.

(63)     Melyik-et   akar-od?
         which-ACC want-1SG.DEF
         'Which do you want?'

This contrast can be explained under the present theory under the assumption that *melyik* 'which' imposes a familiarity requirement on the referential argument and *mit* 'what' does not. (Indeed, it is the very contrast between *which* and *what* that brought the term 'D-linking' into the linguistics vocabulary (Pesetsky 1987), and 'D-linking' is roughly synonymous with 'familiarity' in the sense intended here.)

Following Haida (2007, 2008), I will analyze wh-words as existential quantifiers. This strategy is possible within a dynamic framework such as ours because of the following observation (Groenendijk and Stokhof 1992, p. 122):

> Treating [*wh*-terms] like indefinites in a dynamic framework would mean translating them in terms of dynamic existential quantification. […] [I]f existential quantification is dynamic, we can 'disclose' the property $\lambda x \phi$ from the

existentially quantified $\exists x \phi$. This means that in the end it makes no difference whether we deal with *wh*-terms as a form of restricted $\lambda$-abstraction, or as dynamic existential quantification.

The question word *mit* 'what' will therefore be analyzed as a synonym of *something*:

(64)   $mit_{\langle\langle e,t\rangle,t\rangle}$ 'what' $\rightsquigarrow$
       $\lambda q$ . $[\mathbf{u} :] \otimes q(\mathbf{u})$

*Melyik* 'which', on the other hand, has a familiarity requirement (and takes a common noun argument as well):

(65)   $melyik_{\langle\langle e,t\rangle,\langle\langle e,t\rangle,t\rangle\rangle}$   $\rightsquigarrow$   $\lambda p$ . $\lambda q$ . $[:\gg [\mathbf{y} : \mathbf{y} = \Sigma_y([y' :] \otimes p(y'))]] \otimes$
       $[\mathbf{u} : \mathbf{u} \in \mathbf{y}] \otimes q(\mathbf{u})$

The referential argument $\mathbf{u}$ is related to $\mathbf{y}$ through a mereological part relation, and $\mathbf{y}$ is in the universe of a presupposed universe. Thus *melyik* attributes [+DEF] to the referential argument and *mi* does not.[10]

    Let us briefly consider how these lexical entries work in the context of a question. To do so, it is necessary to bring intensionality into the picture. We have already assumed that predicates are indexed with a possible world parameter. The intension of a declarative sentence is then a function from worlds (or indices) to DRSs. For example, the intension of *You want something* would be the following such function, if $u_1$ is the discourse referent introduced by *something*.

(66)   $\lambda i$ . $[u_1 : \text{WANT}_i(ad, u_1)]$

Following Haida (2007, 2008), I assume that questions contain a [+Q] complementizer at LF, which triggers the interpretation of the sentence as a question. If $^\cup K$ is the intension of a DRS corresponding to a sentence interpreted declaratively, then the intension of the corresponding question at index $i$ is as follows, where $j$ is a variable that ranges over indices:

(67)   $\lambda i$ . $\lambda j$ . $^\cup K(i) = {}^\cup K(j)$

The intension of (62), then, turns out to be the following:

(68)   $\lambda i$ . $\lambda j$ . $[u_1 : \text{WANT}_i(ad, u_1)] = [u_1 : \text{WANT}_j(ad, u_1)]$

The intension of a question is thus an equivalence relation on possibilities, whose corresponding partition is the set of its answers—in this case, alternative answers to the question of what the addressee wants.

### 2.3.9 Possessives

Recall that possession is another factor influencing the definiteness of a noun phrase. *Minden* 'every' phrases, which are normally indefinite, become definite when the noun is possessed:

---

[10] For both determiners, the referential argument is in the universe of a non-presupposed DRS. According to what we have said so far, this means that *melyik* ends up as both [+DEF] and [−DEF]. While we do not want to rule out the possibility that a discourse referent may bear both features, it seems to lead to a dangerous prediction in this case, because the subjective conjugation is apparently not possible with *melyik* in Hungarian. We can avoid predicting that this is possible by stipulating that a single lexical item cannot contribute more than one feature, and that [+DEF] "trumps" [−DEF].
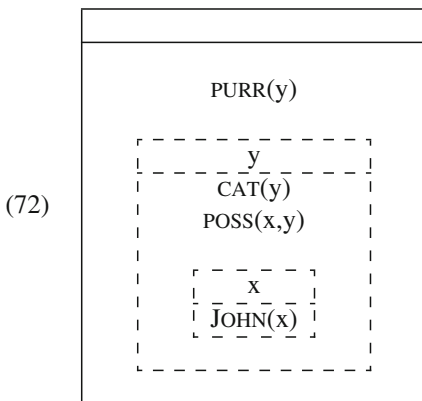
(69)   Ismer-em        minden titk-od-at.
       know-1SG.DEF every    secret-2SG.POSS-ACC
       'I know your every secret.'

With the indefinite determiner *néhány* 'some', the objective conjugation becomes optional (although there is some variation and hesitancy among native speakers on this point).

(70)   Ismer-em/Ismer-ek              néhány titk-od-at.
       know-1SG.DEF/know-1SG.INDEF some    secret-2SG-ACC
       'I know some secrets of yours.'

(71)   Lát-om/Lát-ok            valaki-d-et.
       see-1SG.DEF/see-1SG.INDEF someone-2SG-ACC
       'I see someone of yours.'

The inspiration for the proposed account of this comes from the analysis of English Saxon genitives in van der Sandt (1992), who gives the representation in (72) for a sentence like *John's cat purrs*. In this style of representation, the dotted lines are used to indicate presupposed DRSs.

(72)

$$
\boxed{
\begin{array}{c}
\text{PURR}(y) \\[4pt]
\left\ulcorner\begin{array}{c}
y \\
\text{CAT}(y) \\
\text{POSS}(x,y) \\[4pt]
\left\ulcorner\begin{array}{c} x \\ \text{JOHN}(x) \end{array}\right\urcorner
\end{array}\right\urcorner
\end{array}
}
$$

In our version of linearized box notation, this is:

(73)   $[: \text{PURR}(y) \gg [y : \text{CAT}(y), \text{POSS}(x, y) \gg [x : \text{JOHN}(x)]]]$

The proposed system will produce a similar result for the Hungarian phrase *A János masckája dorombol* 'John's cat purrs'.

In Hungarian, suffixes combine with a common noun to form a possessed noun. The paradigm, taken from Szabolcsi (1994), is shown in Table 1. In each example, the prenominal pronoun is in nominative case. As shown by Szabolcsi, a pronominal possessor need not be overtly expressed, so the possessive suffix alone suffices for a pronominal interpretation of the possessor. However, a possessed noun may also combine with an overt possessor. To cover both cases, I assume that the possessive suffix alone does not contain a pronominal possessor, and when the possessor is not overtly expressed, it is nevertheless syntactically and semantically present. This means

**Table 1** Hungarian possessive marking paradigm (adapted from Szabolcsi 1994)

| Possessor | Singular possessum | Plural possessum |
|---|---|---|
| 1SG | az (én) kalap-om<br>the I hat-POSS.1SG<br>'my hat' | az (én) kalap-ja-i-m<br>the I hat-POSS-PL-1SG<br>'my hats' |
| 2SG | a (te) kalap-od<br>the you hat-POSS.2SG<br>'your hat' | a (te) kalap-ja-i-d<br>the you hat-POSS-PL-2SG<br>'your hats' |
| 3SG | az (ő) kalap-ja<br>the he/she hat-POSS.3SG<br>'his/her hat' | az (ő) kalap-ja-i<br>the he/she hat-POSS-PL.3SG<br>'his/her hats' |
| 1PL | a (mi) kalap-unk<br>the we hat-POSS.1PL<br>'our hat' | a (mi) kalap-ja-i-nk<br>the we hat-POSS-PL-1PL<br>'our hats' |
| 2PL | a (ti) kalap-otok<br>the you hat-2PL<br>'your (PL) hat' | a (ti) kalap-ja-i-tok<br>the 2PL hat-POSS-PL-2PL<br>'your hats' |
| 3PL | az (ő) kalap-j-uk<br>the he/she hat-POSS-PL<br>'their hat' | az (ő) kalap-ja-i-k<br>the he/she hat-POSS-PL-3PL<br>'their hats' |
| Name | (a) Mari kalap-ja<br>the Mary hat-POSS<br>'Mary's hat' | (a) Mari kalap-ja-i<br>the Mary hat-POSS-PL<br>'Mary's hats' |
| Def. desc. | (*az) a fiú-k kalap-ja<br>the the boy-PL hat-POSS<br>'the boys' hat' | (*az) a fiú-k kalap-ja-i<br>the the boy-PL hat-POSS-PL<br>'the boys' hats' |

that the possessive suffix does not saturate the possessor argument, although it does ensure that a possessor argument is present.

A possessed noun will therefore be interpreted as a function of type $\langle e, \langle e, t \rangle \rangle$, where the first argument corresponds to the possessor role. Following Vikner and Jensen (2002) (cf. the discussion in Partee and Borschev 2003), I assume that $\langle e, t \rangle$-type common nouns are semantically coerced into relational nouns prior to the attachment of a possessive suffix, so the possessive suffix *-ja* 'POSS' will have type $\langle \langle e, \langle e, t \rangle \rangle, \langle e, \langle e, t \rangle \rangle \rangle$.

Building on the analysis of possessives by van der Sandt (1992), I treat the possessive suffix as a presupposition trigger.

(74)    *-ja*$_{\langle e, \langle e, t \rangle, \langle e, \langle e, t \rangle \rangle \rangle}$ 'POSS' $\rightsquigarrow$
        $\lambda R_{\langle e, \langle e, t \rangle \rangle} . \lambda x . \lambda y . [:\gg [y : R(x, y)]]$

Note that $y$ is in the universe of a presupposed DRS, so there is a familiarity requirement on the possessum. Note also that $x$ occurs in the presupposed DRS. This means that a binder for the possessor will have to be introduced at some other point in the compositional process, giving the effect of van der Sandt's nested presuppositions.

Suppose that the relational noun *lány* 'daughter' has the following analysis:

(75)    *lány*$_{\langle e, \langle e, t \rangle \rangle}$ 'daughter' $\rightsquigarrow$
        $\lambda x . \lambda y . \text{DAUGHTER}(x, y)$

Then the possessed noun *lánja* 'daughter of' is:

(76) $lánja_{\langle e,\langle e,t\rangle\rangle}$ 'daughter of' $\rightsquigarrow$
$\lambda x . \lambda y . [:\gg [y : \text{DAUGHTER}(x, y)]]$

A non-relational noun like *macska* 'cat' will first be coerced into a relational noun as follows:

(77) $macska_{\langle e,\langle e,t\rangle\rangle}$ 'cat' $\rightsquigarrow$
$\lambda x . \lambda y . \text{CAT}(y) \wedge \text{POSS}(x, y)$

The corresponding possessed noun is then analogous to a possessed relational noun:

(78) $macskája_{\langle e,\langle e,t\rangle\rangle}$ 'cat of' $\rightsquigarrow$
$\lambda x . \lambda y . [:\gg [y : \text{CAT}(y) \wedge \text{POSS}(x, y)]]$

Now let us consider the following sentence and compare it with van der Sandt's analysis of *John's cat purrs*:

(79)  A  János macská-ja   dorombol.
the John  cat-POSS.3SG purr.3SG.INDEF
'John's cat purrs.'

For the sake of comparison with van der Sandt, I treat the proper name as a generalized quantifier, as opposed to a constant discourse referent as suggested by Muskens (1996):

(80) $János_{\langle\langle e,t\rangle,t\rangle}$ 'John' $\rightsquigarrow$
$\lambda P . [: P(\mathbf{x}) \gg [\mathbf{x} : \text{JOHN}(\mathbf{x})]]$

The structure of (79) is as follows:

(81)
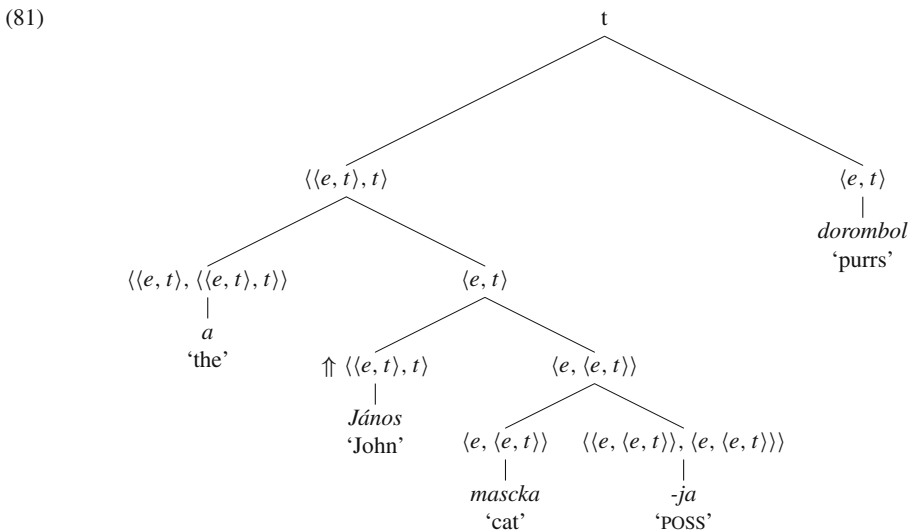
The up-arrow ⇑ on the label of the node above *János* is meant to signify the reader's choice of method for allowing the proper name to be interpreted, as it cannot be interpreted in situ as a generalized quantifier. Somehow the constituent occupied by the possessor must end up as type *e*. Options include Partee's (1986) LOWER type-shift, which maps a principal ultrafilter onto its generator, and Quantifier Raising (or Cooper Storage), which would leave a variable in situ. Implementing any of these solutions would take us too far afield,[11] but properly implemented they should all lead to the following representation for the sentence as a whole:

(82)

$$
\boxed{
\begin{array}{c}
\text{PURR}(y) \\[4pt]
\fbox{$\begin{array}{c} y \\[2pt] y = \Sigma_{y'} \quad \fbox{$\begin{array}{c} y' \\ \text{CAT}(y') \\ \text{POSS}(x,y') \end{array}$} \end{array}$} \quad \fbox{$\begin{array}{c} x \\ \text{JOHN}(x) \end{array}$}
\end{array}
}
$$
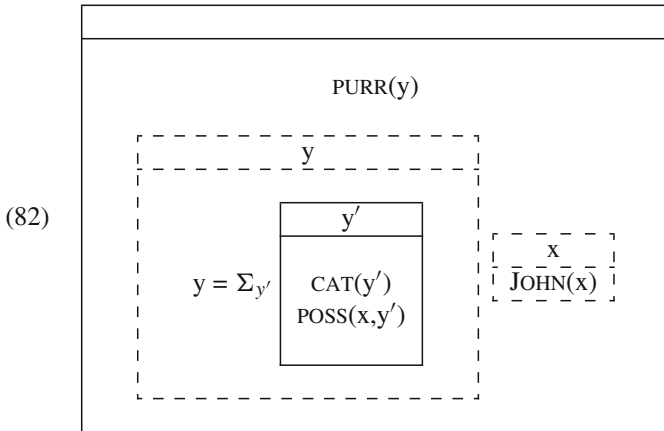
Note that the presupposition for the proper noun has to be resolved in a DRS that is accessible to the DRS where the possessive presupposition is resolved, so that *x* is bound.

### 2.3.10 Quantified possessed nouns

Now for the punchline: combining possessed noun phrases and quantifiers, as in (83).

(83)   Minden titk-á-t              ismer-em.
       every   secret-POSS.3SG-ACC know-1SG.DEF
       'I know every secret of his.'

Here is the syntactic structure, with the constituents labelled by semantic type:

---

[11] The QR solution, which seems to me to be the most straightforward way to derive (82), would require relativizing interpretation to assignments, a method for mapping between assignment-dependent and assignment-independent denotations, a rule mapping trace/pronoun indices to discourse referents, a rule for interpreting traces as variables, and a rule of predicate abstraction.
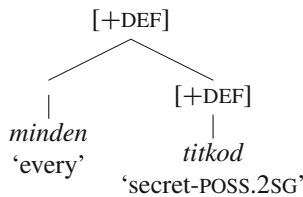
(84)

```
                                                t
                                ┌───────────────┴───────────────┐
                          ⟨⟨e, t⟩, t⟩                        ⟨e, t⟩
                    ┌──────────┴──────────┐                    │
        ⟨⟨e, t⟩, ⟨⟨e, t⟩, t⟩⟩         ⟨e, t⟩               ismerem
                    │            ┌────────┴────────┐      'know.1SG.DEF'
                 minden     ⇑ ⟨⟨e, t⟩, t⟩     ⟨e, ⟨e, t⟩⟩
                 'every'          │         ┌──────┴──────────┐
                                  -ó-   ⟨e, ⟨e, t⟩⟩  ⟨⟨e, ⟨e, t⟩⟩, ⟨e, ⟨e, t⟩⟩⟩
                              'he/she'        │               │
                                            titok            -ja
                                           'secret'         'POSS'
```
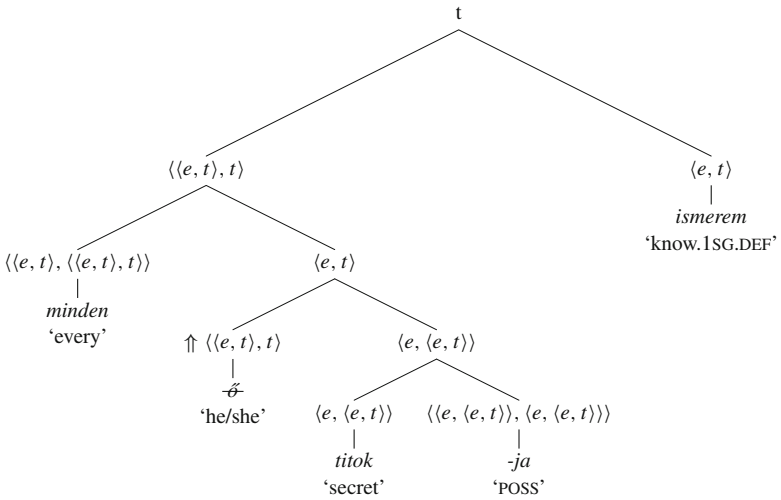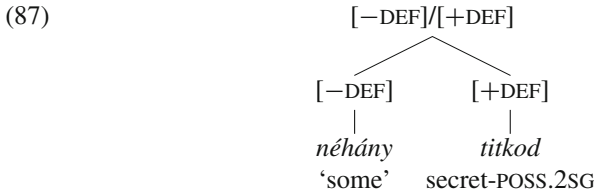
The representation that comes out is as follows:

(85)
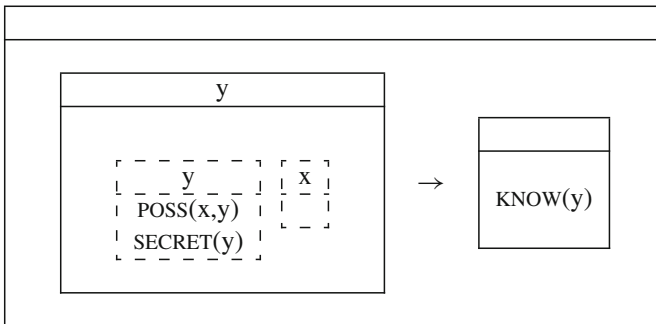


The upshot of all this is that the referential argument (y) is lexically specified as anaphoric by the possessive suffix, so the phrase is [+DEF] due to the presence of the possessor, even though *minden* 'every' is unspecified for definiteness, designating neither familiarity nor novelty for its referential argument:
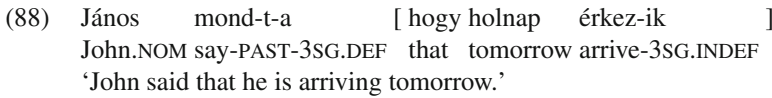
(86)

```
                      [+DEF]
                ┌───────┴───────┐
                │            [+DEF]
                │               │
             minden          titkod
             'every'    'secret-POSS.2SG'
```

With an indefinite quantifier, a possessed phrase ends up with both [+DEF] and [−DEF]:

(87)

$$[-\text{DEF}]/[+\text{DEF}]$$

```
        [−DEF]        [+DEF]
          |             |
        néhány        titkod
        'some'      secret-POSS.2SG
```

As this predicts, there is variation and uncertainty in the judgments about the subjective vs. objective conjugation in this case. For some speakers that I have consulted, both options are possible; other speakers allow only one or the other, and most speakers evince some hesitation and uncertainty in this case.
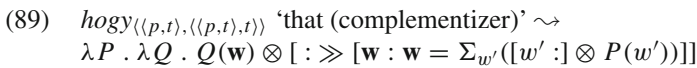
### 2.3.11 CP objects

As mentioned in Sect. 1, CP objects trigger the objective conjugation.

(88)  János      mond-t-a          [ hogy holnap    érkez-ik          ]
      John.NOM say-PAST-3SG.DEF   that  tomorrow arrive-3SG.INDEF
      'John said that he is arriving tomorrow.'

If the hypothesis put forth here is correct, and applies to CP objects, then CPs must have referential arguments, and these referential arguments must always be familiar.

Of course, the discourse referent for an embedded clause should represent a possible scenario rather than an individual. The assumption that there are discourse referents for possibilities is supported by a number of parallels between the nominal and the modal domain with respect to anaphora, as discussed by Stone (1997), Bittner (2001), and others. Brasoveanu (2007) argues convincingly that an account of such parallels requires the ability to track relationships among discourse referents, as in his Intensional Plural Compositional DRT, where contexts are sets of assignments rather than just assignments. This expressive power is lacking in the present framework (fortunately or unfortunately, depending on the reader's perspective).

However, I leave the reader with a conjecture. Bittner (2001) proposes that possibilities can be related to other possibilities through a part-whole relation, just as individuals can be related to other individuals that way. Possible worlds are atomic possibilities; non-atomic possibilities consist of multiple possible worlds. A clause could then be analyzed in a parallel fashion to a definite description, with maximization over possibilities rather than individuals, as follows ($p$ is the type of discourse referents representing possibilities and $w$, $w'$ are discourse referents ranging over possibilities):

(89)  $hogy_{\langle\langle p,t\rangle,\langle\langle p,t\rangle,t\rangle\rangle}$ 'that (complementizer)' $\rightsquigarrow$
      $\lambda P \, . \, \lambda Q \, . \, Q(\mathbf{w}) \otimes [\, : \gg [\mathbf{w} : \mathbf{w} = \Sigma_{w'}([w' :] \otimes P(w'))]]$

The meaning of the finite complementizer would then be a generalized quantifier over possibilities, just as the definite determiner is a generalized quantifier over individuals. Like the definite determiner, it is the principal ultrafilter of a unique maximal entity whose existence is presupposed. While this view appears promising, there is more to be worked out; what it means to be a property of possibilities and how such properties enter into the derivation are two questions that I leave for future research.

### 3 Conclusion

I have argued that the distribution of the subjective and objective conjugations in Hungarian is sensitive to the definiteness feature of the object phrase, as determined by the definiteness of the lexical items along its extended projection. When the object phrase is [+DEF], the objective conjugation may be used, and when the referential argument is [−DEF] or unmarked for definiteness, the subjective conjugation may be used. A lexical item is [+DEF] if it specifies that its referential argument is familiar (in the universe of a presupposition DRS or linked to such a referent via a mereological part relation), and [−DEF] if it specifies that its referential argument is new (in the universe of a non-presupposition DRS). Because the features [+DEF] and [−DEF] are regulated by independent principles, it can happen that a noun phrase bears neither (e.g. *every* phrases) or both (e.g. possessed noun phrases with indefinite determiners). In the case where a noun phrase bears both, the result is optionality, speaker uncertainty, and speaker variation.

This analysis covers a wide range of phenomena, including local and non-local reflexive and non-reflexive pronouns, specific and non-specific quantifiers, definite and indefinite articles, demonstratives, wh-words, and possessives. It has been implemented with a fragment of Hungarian containing all of the relevant lexical entries, in a compositional dynamic framework.

One of the most notable successes of this analysis is that it explains the complex pattern of person-sensitivity in the distribution of the objective conjugation using a single synchronic principle. All other accounts of person sensitivity that I am aware of treat person synchronically as a separate factor. Bartos (2001) suggests an account in terms of ergativity, noting that it is "reminiscent of an ergative-type split …first and second person pronouns follow a nominative-accusative pattern, as opposed to third person ones engaging in an ergative-absolutive pattern" (p. 322). É. Kiss (2005) proposes that the person restriction can be understood using the notion of an inverse system, where a special marking occurs when the object is higher on some scale than the subject. Comrie (1977, p. 10) claims that because first and second person pronouns are inherently definite, there is no need to mark them explicitly; Gerland and Ortmann (2009) give a similar functionalist explanation. Coppock and Wechsler (2010) treat the observed role or person in Hungarian as a historical relic of the fact that only third person pronouns were incorporated. While some of these accounts are more explanatory and empirically successful than others, none of them captures the person sensitivity—and the exception involving reflexives and reciprocals—using the same principle that is used to account for all of the other distributional properties of the objective conjugation. Under the present account, the reason that first and second person non-reflexive, non-reciprocal pronouns do not trigger the objective conjugation is that they are not anaphoric; they are pure indexicals. On the other hand, reflexive and reciprocal first and second person pronouns are anaphoric, and therefore do trigger the objective conjugation.

Another distinguishing feature of this proposal is that it explains contrasts between lexical items of the same syntactic category: some wh-words trigger the objective conjugation and others do not; some quantifiers trigger the objective conjugation and others do not. As Coppock and Wechsler (2012) point out, such facts are puzzling

under the DP-hood hypothesis. Yet rather than assuming that the subjective/objective alternation is synchronically unpredictable, the present paper has shown that a semantic solution is possible.

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