

On Quotational Indefinites¹

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Abstract. This paper discusses QUOTATIONAL INDEFINITES, an understudied variety of indefinites that is attested in languages like Bulgarian and German (see Cieschinger & Ebert 2011 on the latter), and are akin to Japanese *wh*-doublets (see Sudo 2008) and English placeholders like *whatshisface* or *so-and-so* (cf. Clark & Gerrig 1990). My major claim is that quotational indefinites existentially quantify over linguistic expressions and make reference to both expressions and their denotations. In addition, such indefinites require that the expressions they quantify over are of a certain type (a referential expression, a particular kind of adverbial, etc.) and originate in a previous conversation. This work uncovers important interactions between indefiniteness, quotation, and reportativity, and broadens our understanding of the typology of indefinites.

Keywords: indefinites, quotation, reportativity, two-dimensional semantics.

1. Introduction

This paper studies QUOTATIONAL INDEFINITES (QIs), a less-known variety of indefinites which range over quoted speech. Building on previous work on QIs in German (Cieschinger & Ebert 2011) and indefinite forms with related properties in Japanese (Sudo 2008), I provide fresh data from Bulgarian and offer a uniform account which captures their distribution and core semantic properties.

The phenomenon of quotational indefinites is illustrated below for Bulgarian (1) and German (2).²

- (1) Maria izliza-l-a s *edi-koj si*.
Maria go.out-EV-FEM with QI.MASC
'Maria is dating someone.'
↪ 'Maria's date was mentioned to the speaker in a previous conversation.'
- (2) Luise hat gesagt, dass *die* *und die* von der Schule geflogen ist.
Luise has said that the.FEM and the.FEM from the school expelled is
'Luise said that someone has been expelled from school.'

¹I would like to thank Cornelia Ebert, Emar Maier, Roger Schwarzschild, Yasutada Sudo, Henriette de Swart, Ede Zimmermann, three anonymous reviewers, and the audiences at the University of Düsseldorf, *FASL 24*, and *Sinn und Bedeutung 20* for valuable input. For judgments, I am indebted to Paul Gauss, Svetoslav Koev, Fabian Koglin, Barbara Mergelsberg, Donka Stefanova, and Peter Sutton. All mistakes are my own.

²Abbreviations in glossed examples: ISG = first person singular (etc. for other persons and numbers), ACC = accusative, C = declarative complementizer, DAT = dative, DEF = definite, EV = evidential, FEM = feminine, MASC = masculine, NEUT = neuter, PAST = past tense, PL = plural, PP = past participle, REFL = reflexive, TOP = topic.

↪ ‘The person expelled from school was identified in a previous conversation.’
(Cieschinger & Ebert 2011: 176; slightly modified)³

The Bulgarian DP *edi-koj si* in (1) has an indefinite-like meaning. The core proposition expressed by the sentence is that Maria is dating someone. The sentence also implies that the speaker heard a referring description of Maria’s date in a previous conversation. This REPORTATIVE IMPLICATION is due to the presence of *edi-koj si*, as witness the fact that substituting it with the regular indefinite *njakoj* ‘someone.MASC’ removes the implication. German indefinites of the form *die und die* have a similar meaning, as seen from (2).

What are the semantic properties of QIs and how can these be derived from the lexical meaning of QIs and their interaction with the surrounding discourse? I will argue that QIs are characterized by the following three major properties. First, QIs have a hybrid semantics: they involve existential quantification over expressions, i.e. linguistic objects, but they make reference to both expressions and their denotations. This feature of QIs sets them apart from regular indefinites, which range over individuals. Second, QIs serve reportative functions. They range over quoted speech, i.e. pieces of language which originate with another speaker. This property is the source of the reportative implication mentioned above. Third, QIs impose restrictions on the type of expressions they range over. In this paper, I focus on QIs that express nominal categories, such as person or thing. Nominal QIs can only range over referential expressions, e.g. proper names, definite descriptions, or demonstratives, and not over quantificational or indefinite expressions. This is the reason why the QIs in (1)-(2) are understood as referring to specific individuals. I briefly illustrate how the proposed analysis can be extended to QIs which range over predicative expressions, e.g. adverbials.

Indefinite expressions with related meanings are attested in other languages as well. Sudo (2008) discusses the case of Japanese *wh*-doublets, e.g. *dare-dare*. He argues that such forms fill in for arbitrary person-denoting expressions and can only appear in quotation, as in (3). Japanese *wh*-doublets then differ from QIs in Bulgarian and German, whose distribution is by no means limited to quotational environments.

- (3) John-wa “Bill-ga *dare-dare*-o aishitieru” to itta.
John-TOP “Bill-NOM who-who-ACC love” C said
‘For some expression *X* such that *X* denotes a person, John said “Bill loves *X*”.’
(Sudo 2008: 622)

QIs of the type found in Bulgarian and German are also akin to English placeholders like *whatshisface*, *whatshisname*, *so-and-so*, *such-and-such*, *thingummy*, *thingy*, *blah blah blah*, *yada yada*

³Although the formulation of the reportative implication in (2) is absent in Cieschinger & Ebert’s original translation, it closely follows their analysis.

yada, etc. Such illocutions fill in for linguistic expressions as well and very likely have an expression-based semantics. In addition, they can easily be understood as pointing at a previous conversation. For example, *whatshisface* in (4a) is most naturally interpreted as a placeholder for the name of the person Rebecca said she saw, and *yada yada yada* in (4b) fills in for various complaints one would hear from the newly megafamous.

- (4) a. Rebecca said she saw *whatshisface* last night.
b. Becoming Headline News Refreshingly, you will not hear from Affleck the familiar complaints of the newly megafamous: the paparazzi, the zealous fans, lack of privacy, *yada yada yada*. (*Cosmopolitan* 1999, vol. 226, iss. 4, pg. 204)

Unlike QIs in Bulgarian and German though, English placeholders can sometimes be used without reference to a previous conversation, as in (5).

- (5) a. Kate Middleton and Husband *Whatshisface* Get Baby George Christened
(*Cosmopolitan*, October 23, 2013)
b. I met this lawyer, we went out to dinner, I had the lobster bisque, we went back to my place, *yada yada yada*, I never heard from him again. (*Seinfeld*, episode 147)

Some of the English placeholders listed above also differ from QIs in that they impose no restrictions on the type of the expression they refer to. While *whatshisface* stands for a proper name, *yada yada yada* can fill in for any stretch of discourse. English placeholders then match QIs in some but not all respects.

The structure of the paper is as follows. Section 2 discusses the core semantic properties of QIs, i.e. their indefiniteness, their reportativity, and the restrictions they impose on the expressions they range over. Section 3 presents the formal proposal, which is based on a simple two-dimensional semantics for quotation. Section 4 is the conclusion.

2. The data

2.1. Indefiniteness

QIs are intuitively felt to be indefinites rather than definites. Here I present two pieces of evidence in support of this intuition.⁴ The first piece of evidence comes from the lack of uniqueness effects associated with QIs. According to an influential theory of (in)definiteness that goes back to Russell (1905), the use of definite descriptions requires a unique referent while the use of indefinite

⁴See also Cieschinger & Ebert (2011) for evidence that German QIs exhibit the scopal properties of indefinites.

descriptions does not. The relevant contrast is illustrated for English in (6a), where in the given context only an indefinite description is felicitous. As demonstrated in (6b)-(6c), QIs in Bulgarian and German pattern with indefinites rather than definites in this respect.⁵

- (6) *Sarah has three boyfriends: Ryan, Brian, and Ian. She said tonight she would go out with one of them and mentioned his name but the speaker forgot it.*
- a. Sarah said she will go out with #her boyfriend / a boyfriend.
 - b. Sara kaza, če šte izliza s *edi-koe si* gadže.
Sara say that will go.out. with QI.NEUT boyfriend
'Sarah said she will go out with a boyfriend.'
 - c. Sarah hat gesagt, dass sie mit *dem und dem* Freund rausgehen wird.
Sarah have.3SG say.PP that she with QI.DAT friend go.out will
'Sarah said she will go out with a boyfriend.'

Second, like indefinites and unlike definites, QIs cannot refer back to a salient antecedent. Heim (1982) was among the first to point out that indefinites and definites differ in their discourse properties. In particular, while indefinites establish a new discourse referent, definites typically refer to a discourse referent that is already given. As seen from (7a), once a discourse referent is established, it can be referred back to by definites but not indefinites. Once again, QIs in Bulgarian (7b) and German (7c) exhibit the discourse properties of indefinites.

- (7) a. A manⁱ walked in. Someone_{#i} / He_i sat down.
- b. Včera govori-x s Ivanⁱ. *Edi-koj si*_{#i} / *Njakoј*_{#i} / *Čovek-ūt*_i ima-l nova rabota.
yesterday talk-PAST with Ivan QI.MASC / someone / guy-DEF have-EV new job
'Yesterday I talked to Ivanⁱ. The guy_i has a new job.'
 - c. Ich habe gestern mit Claudia über ihren Bruderⁱ gesprochen. Sie hat I have.1SG yesterday with Claudia about her brother talk.PP she have.3SG gesagt, *der und der*_{#i} / *jemand*_{#i} / *er*_i hat einen neuen Job.
say.PP QI.MASC / someone / he have.3SG a new job
'Yesterday Claudia and I talked about her brother. She said he has a new job.'

These data lend strong support to the claim that QIs are indeed indefinites. This finding does not exhaust their indefinite meaning, though. I will argue below that QIs differ from regular indefinites in that they range over linguistic expressions. But for now we can view them as indefinite forms with some additional properties.

⁵I omit the reportative implication whenever its presence is irrelevant to the issue at hand.

2.2. Reportativity

By uttering a sentence with a QI the speaker indicates that she would normally be in a position to use a referential expression. The fact that she instead used a QI may suggest that the speaker forgot that expression or perhaps that she considers the identity of the referent to be irrelevant for the purposes of the conversation. To illustrate, the Bulgarian sentence in (1) above asserts that Maria is dating someone and further implies that Maria's date was mentioned to the speaker in a previous conversation, i.e. the conversation in which the speaker was told who Maria is dating. The reportative implication projects past entailment-canceling operators. It is not canceled when the sentence is negated or includes a modal operator.

- (8) Maria ne / verovatno izliza-l-a s edi-koj si.
Maria not / probably go.out-EV-FEM with QI.MASC
'Maria is not/probably dating a certain person.'
↪ 'Maria's date was mentioned to the speaker in a previous conversation.'

Cieschinger & Ebert (2011) analyze reportative implications triggered by QIs as presuppositions. This analysis nicely captures the projective behavior observed in (8). At the same time, such implications do not seem to be standard presuppositions. They typically introduce discourse-new information and are "informative" presuppositions at best (see Stalnaker 2002; Schlenker 2007; von Stechow 2008 on this notion). Also, the projection behavior of reportative implications is much unlike that of other presuppositions in at least two respects. First, reportative implications cannot be canceled the way other presuppositions can. While the simple sentence in (9a) presupposes that Jack has a wife, the sentence in (9b) does not, due to the fact that the presupposition of the main clause is entailed by the conditional antecedent. If we try to cancel the reportative implication in a similar way, we get infelicity, as seen from the Bulgarian sentence in (10).

- (9) a. Jack's wife must be very patient.
b. If Jack has a wife, then Jack's/his wife must be very patient.
- (10) #Ako ču-ja Maria s kogo izliza, šte pokan-ja edi-koj si.
if hear-1SG Maria with whom go.out will invite-1SG QI.MASC
'If I hear who Maria is dating, I will invite the guy.' (attempted)

Second, Karttunen (1974) notices that if the complement of an attitude predicate (which is not a factive verb or a verb of saying) presupposes p , then the sentence as a whole presupposes not p but rather that the attitude holder believes p (see also Heim 1992; Geurts 1999). Under normal circumstances, the sentence in (11) would presuppose not (11a) but rather (11b). This projection

pattern is not found in sentences with QIs, in which the reportative implication projects in its unmodified form (12).

- (11) Patrick wants to sell his cello. (Heim 1992: 183)
a. ✗ Patrick owns a cello.
b. ↗ Patrick believes that he owns a cello.

- (12) Ivan iska-l da se obadi na *edi-koj si*.
Ivan want-EV to REFL call to QI.MASC
'Ivan wants to call someone.'
REPORTATIVE IMPLICATION:
✓ 'The person Ivan wants to call was mentioned to the speaker in a previous conversation.'
✗ 'Ivan believes that the person he wants to call was mentioned to the speaker in a previous conversation.'

The data in (10) and (12) come from Bulgarian but they can be replicated in German as well. It then appears that the reportative implication is systematically informative and projects in a stronger sense than standard presuppositions do. Given these findings, I will analyze it as a CONVENTIONAL IMPLICATURE, in the sense of Potts (2005), i.e. as a secondary entailment that projects.

It is clear from the above discussion that reportative implications make reference to a previous conversation. In other words, the interpretation of QIs depends on a secondary speech context. This predicts that QIs only occur in environments in which the existence of such context can be implied. Indeed, an out-of-the-blue utterance of the Bulgarian sentence in (13) would be infelicitous. QIs in this language need to be licensed either from inside the sentence, e.g. by a verb of saying in the matrix clause (14) or an indirect evidential marker in the host clause (see (1) above), or from previous discourse, as in (15).

- (13) #Iska-m da gleda-m *edi-koj si* film.
want-1SG to watch-1SG QI.MASC movie
'I want to see some movie.' (attempted)
- (14) Ivan kaza, če ima srešta s *edi-koj si*.
Ivan say that have meeting with QI.MASC
'Ivan said that he is meeting someone (he said who).'
- (15) Govori-x s Ivan. Toj šte xodi do *edi-koj si* grad.
talk-PAST with Ivan he will go to QI.MASC city
'I talked to Ivan. He will visit some city (he said which one).'

Cieschinger & Ebert's (2011) discussion may give the impression that QIs in German need to be grammatically licensed by a c-commanding speech context operator. More specifically, German QIs are ruled out in simple main clauses (16) and typically appear in the scope of verbs of saying (see (2) and (6c) above), speech nouns like *Behauptung* 'claim', or evidential markers like *angeblich* 'allegedly'. However, licensing from discourse is sometimes possible, as (17) demonstrates.

- (16) Weißt du was? #*Die und die* ist von der Schule geflogen.
 know.3SG you what QI.MASC be.3SG from the school fly.PP
 'Guess what. Someone has been expelled from school.' (attempted)

- (17) Ich habe gestern mit Luise geredet und sie hat mir von ihrem Arbeitsalltag erzählt.
 I have yesterday with Luise spoken and she has me of her work routine told
Der und der lässt immer die Fenster offen, *die und die* setzt nie neuen Kaffee auf
 the and the leaves always the windows open the and the puts never new coffee on
 und *der und der* kommt immer zu spät.
 and the and the comes always too late
 'I spoke to Luise yesterday and she told me about her work routine. Someone [...] always leaves the windows open, someone else [...] never brews new coffee, and someone else [...] is always late.'
 (Cieschinger & Ebert 2011: 196)

I will then adopt the view that QIs in Bulgarian and German can be licensed by grammar or discourse, assuming that their use is acceptable as long as the existence of a secondary speech context can be implied.

The final facet of reportativity that I discuss concerns quotation. When they appear in direct quotation, QIs are ambiguous between a reading whereby they lose their semantic properties (just like other quoted material) and a reading whereby their semantic properties are retained. To illustrate, the Bulgarian sentence in (18) is ambiguous between a VERBATIM reading, in which the speaker repeats Ivan's exact words, and a NON-VERBATIM reading, in which the QI fills in for a (referential) description contained in the original utterance. Parallel sentences in German give rise to the same two readings, see (19). As Clark & Gerrig (1990) already notice on the basis of similar examples, the same ambiguity is found with English placeholders (20).

- (18) Ivan kaza: "Maria izliza-l-a s *edi-koj si*".
 Ivan say: "Maria go.out-EV-FEM with QI.MASC"
 a. 'Ivan said: "Maria izlizala s *edi-koj si*".' (verbatim reading)
 b. 'Ivan said: "Maria izlizala s *z*", for some referential expression *z*.' (non-verbatim reading)

- (19) Claudia sag-te: “*Der und der* ist angeblich von der Schule geflogen”.
 Claudia say-PAST: “*QI.MASC be.3SG allegedly from the school fly.PP*”
- a. ‘Claudia said: “*Der und der ist angeblich von der Schule geflogen*”.’
 (verbatim reading)
 - b. ‘Claudia said: “*z ist angeblich von der Schule geflogen*”, for some referential expression *z*.’
 (non-verbatim reading)
- (20) Kyle said: “I haven’t seen *whatshisface* in a while”.
- a. ‘Kyle said: “I haven’t seen *whatshisface* in a while”.’
 (verbatim reading)
 - b. ‘Kyle said: “I haven’t seen *z* in a while”, for some proper name *z*.’
 (non-verbatim reading)

One might wonder whether there are cues that disambiguate between the two possible interpretations of such sentences. Indeed, the absence of a reportative operator inside the quotation provides one such cue. The quotations in (18)-(19) contain reportative operators (*-l* ‘-EV’ or *angeblich* ‘allegedly’, respectively), which license yet do not require a QI. The quoted segment is thus ambiguous: it could have been uttered as is (the verbatim interpretation) or with some expression occurring in lieu of the QI (the non-verbatim interpretation). However, the non-verbatim reading seems to disappear as soon as the reportative operator is removed because in that case it is much harder to construe the quoted segment as uttered in isolation.

The availability of non-verbatim readings suggests that QIs can “confuse” mention and use. I take this to be a first indication of the fact that QIs have a mixed expression/denotation-based semantics. This idea will be one of the major stepping stones for the formal analysis in Section 3.

2.3. Restrictions on expressions

I indicated above that QIs range over pieces of language that the speaker heard in a previous conversation. Not just any expression can serve as a QI “antecedent”, though. Such expressions need to be REFERENTIAL terms, e.g. a proper name, a definite description, or a demonstrative, as in (21). They cannot be quantificational DPs (22).

- (21) *Maria*: Ima-m srešta s Ivan / šef-a mi / tozi čovek.
 have-1SG meeting with Ivan / boss-DEF my / this guy
 ‘I am meeting with Ivan / my boss / this guy.’
- Speaker*: *Maria* ima-l-a srešta s *edi-koj si*.
 Maria have-EV-FEM meeting with QI.MASC
 ‘Maria is meeting with someone.’

(22) *Maria*: Ima-m srešta s mnogo koleg-i / vsički deca.
 have-1SG meeting with many colleague-PL / all child.PL
 ‘I am meeting with many coworkers / all the kids.’

Speaker: #Maria ima-l-a srešta s edi-koi si koleg-i / edi-koi si deca.
 Maria have-EV-FEM meeting with QI.PL colleague-PL / QI.PL child.PL

It should be emphasized that the restrictions imposed by QIs are indeed on expressions rather than individuals. In (21), for example, the speaker may not have been able to identify the person Maria had referred to in the source context. Even so, the fact that the speaker knows Maria used a referential term is enough to license a report with a QI.

The “antecedent” expression cannot be an indefinite, not even a SPECIFIC indefinite, as visible from (23).

(23) *Ivan*: Sreštna-x edin prijatel ot učilište.
 meet-PAST one friend from school
 ‘I met a friend of mine from school.’

Speaker: #Ivan sreštna-l edi-koj si prijatel ot učilište.
 Ivan meet-EV QI.MASC friend from school

This finding might be initially striking, as specific indefinites have sometimes been analyzed as referential expressions (see e.g. Fodor & Sag 1982). If so, the impossibility of QIs to range over specific indefinites, which in context can be understood as referring to specific individuals, could be taken as further evidence that QIs impose restrictions not on regular model-theoretic entities but rather on linguistic expressions.

The Bulgarian data in (21)-(23) echo similar restrictions on antecedents imposed by QIs in German. Cieschinger & Ebert (2011: 177–178) notice that (24a), which includes referential expressions, but not (24b), which uses indefinites, can be the source of (25).

(24) *a. Luise*: Der Student aus München / Ludwig hat schon wieder das Fenster offen
 the student from Munich / Ludwig has yet again the window open
 gelassen.
 left

‘The student from Munich / Ludwig has left the window open yet again.’

b. Luise: Irgendjemand / Ein Freund von mir aus München hat schon wieder das
 someone / a friend of mine from Munich has yet again the
 Fenster offen gelassen.
 window open left

‘Someone/A friend of mine from Munich has left the window open yet again.’

- (25) *Speaker*: Luise hat sich mal wieder beklagt, *der und der* hätte schon
Luise has [REFL] yet again complained the and the would.have yet
wieder das Fenster offen gelassen.
again the window open left
‘Luise complained again that someone has left the window open yet again.’

These data suggest that the referentiality restriction on “antecedent” expressions is quite robust across Bulgarian and German.

3. Proposal

The formal account rests on the assumption that QIs range over referential expressions that originate in a previous conversation. The intuitive idea is that QIs are placeholders for quoted material. Since quotation plays such an important role, the formal account of QIs will be embedded into a semantics for quotation.

3.1. A two-dimensional semantics for quotation

The semantics of quotation has been extensively studied in the philosophy and formal semantics literature (see Potts 2007; Shan 2010; Ginzburg & Cooper 2014; Maier 2014; see also Cappelen & Lepore 2012 and Saka 2013 for two recent overviews). In this section, I build on the main insights coming from previous work and introduce a two-dimensional semantics for quotation on which the analysis of QIs is based.

When analyzing quotation, the first and perhaps most important move is to ensure that linguistic expressions are recognized as model-theoretic entities in their own right. To this end, I follow Potts (2007) and introduce a logical type for linguistic expressions. I assume the basic types e (for individuals), t (for truth values), s (for possible worlds), k (for speech contexts), and u for linguistic expressions. Complex types are formed from these and can be functional (e.g. $\sigma \rightarrow \tau$) or product (e.g. $\sigma \times \tau$), for any types σ and τ . Product types are assigned to two-dimensional meanings. I assume domains for all basic entities as well as functional and product domains, defined as $D_{\sigma \rightarrow \tau} := D_{\tau}^{D_{\sigma}}$ and $D_{\sigma \times \tau} := D_{\sigma} \times D_{\tau}$ (respectively). The full domain is defined as $D := \bigcup_{\tau \in \text{Type}} D_{\tau}$. Domains of the form D_u are sets of all possible strings, not only the ones that are a part of the language. This is because quoted speech need not be well-formed.

We saw in Section 2.2 that sentences with QIs give rise to reportative implications which behave like conventional implicatures. In order to capture this fact, I will assume that meanings in general

are two-dimensional, such that truth-conditional content makes up the first dimension and conventionally implicated content projects a second dimension (cf. Potts 2005; 2007). A two-dimensional semantics like this necessitates a slight reformulation of the standard composition rule of function application along the following lines.

(26) TWO-DIMENSIONAL FUNCTION APPLICATION

If $\llbracket A \rrbracket_{(\sigma \rightarrow \tau) \times t}^{c,w} = \langle a_1, a_2 \rangle$ and $\llbracket B \rrbracket_{\sigma \times t}^{c,w} = \langle b_1, b_2 \rangle$, then $\llbracket AB \rrbracket_{\tau \times t}^{c,w} = \llbracket BA \rrbracket_{\tau \times t}^{c,w} = \langle a_1(b_1), a_2 \& b_2 \rangle$.

This rule states that function-argument composition happens in the first dimension while conventionally implicated content is simply conjoined. Since the latter content is always of type t , conjoining it is always possible. For example, let $\llbracket \text{Kristen} \rrbracket_{e \times t}^{c,w} = \langle \text{kristen}, \top \rangle$ and $\llbracket \text{asleep} \rrbracket_{(e \rightarrow t) \times t}^{c,w} = \langle \lambda x_e. \text{asleep}(w, x), \top \rangle$, where c is a context, w is a possible world, and lexical items without conventionally implicated content are assigned \top (for “tautology”) in their second dimension. These two meanings can be composed by the rule in (26) to $\llbracket \text{Kristen is asleep} \rrbracket^{c,w} = \langle \text{asleep}(w, \text{kristen}), \top \rangle$, which asserts that Kristen is asleep (in the world w and the context c) and has an uninformative second meaning dimension. Also, we can assume that sentential operators only take scope over the first, truth-conditional dimension while the second meaning dimension projects. For example, if we define negation as $\llbracket \text{not} \rrbracket_{(t \rightarrow t) \times t}^{c,w} = \langle \lambda p_t. \neg p, \top \rangle$, we get $\llbracket \text{not [Kristen is asleep]} \rrbracket^{c,w} = \langle \neg \text{asleep}(w, \text{kristen}), \top \rangle$.

Next, I discuss quotation and demonstrate how its core semantic properties can be captured in the formal setup just outlined. Quotation is often subdivided into three major categories: PURE, DIRECT, and MIXED.

- (27) a. “Bachelor” has eight letters. (pure quotation)
 b. Quine said: “Quotation has a certain anomalous feature”. (direct quotation)
 c. Quine said that quotation “has a certain anomalous feature”. (mixed quotation)

Pure quotation is a linguistic tool which enables speakers to make reference not to the denotation of an expression but rather to the expression itself. Direct quotation makes reference to expressions as well but it also attributes the quoted segment to another speaker. Mixed quotation owes its name to the fact that it exhibits a mixture of properties associated with both direct and indirect discourse (see Davidson 1979; Cappelen & Lepore 1997; Potts 2007; Shan 2010; Maier 2014). Like indirect discourse, mixed quoted segments contribute to the semantic composition in the usual way. However, and similar to direct quotation, such segments attribute the quoted expression to another speaker.

I assume that direct and pure quotations share core semantic properties.⁶ They both contribute an expression rather than a regular meaning to the semantic computation (cf. the so-called DIS-QUOTATIONAL THEORY of quotation, first proposed in Richard 1986). In addition, they both fill argument positions, as can be seen from (27a)-(27b) (see also Partee 1973; Recanati 2001; Bonami & Godard 2008; de Vries 2008). As a first pass, I propose the following interpretation rule for pure/direct quotation. (I use Quine corners $\ulcorner \cdot \urcorner$ in the metalanguage to reference a string.)

(28) PURE/DIRECT QUOTATION (first version)

$$\llbracket \text{“}\alpha\text{”} \rrbracket_{u \times t}^{c,w} = \langle \ulcorner \alpha \urcorner, \top \rangle$$

I assume that mixed quotations contribute the regular meaning of the quoted expression and conventionally implicate that the quoted segment was uttered in a previous conversation.⁷ An interpretation rule for mixed quotation that achieves this effect is given below. For a given speech context c , let $\text{sp}(c)$ be the speaker of c , $\text{hr}(c)$ be the hearer of c , and $\text{utt}(c)$ be the set of expressions uttered in c .

(29) MIXED QUOTATION

$$\llbracket \text{“}\alpha\text{”} \rrbracket_{\sigma \times t}^{c,w} = \left\langle \begin{array}{l} \llbracket \alpha \rrbracket^{c',w}, \\ \text{sp}(c) = \text{hr}(c') \ \& \ \ulcorner \alpha \urcorner \in \text{utt}(c') \end{array} \right\rangle, \text{ for any type } \sigma$$

This interpretation rule states that a mixed quoted segment is interpreted relative to a source context c' , thus capturing the fact that indexical elements inside mixed quotation usually undergo perspective shift (see Maier 2014). Mixed quotation conventionally implicates that the quoted segment was uttered in the source context and that the current speaker participated in that context as a hearer. I assume that the free metalanguage variable c' is bound from previous discourse, which supplies a source context. For example, in *Trump said that McCain is “not a war hero”* the source context will be understood as the secondary context introduced by the verb of saying.

This semantics for quotation leaves out several intricate aspects (see Partee 1973; Recanati 2001; Potts 2007; Shan 2010; Ginzburg & Cooper 2014; Maier 2014; a.o.). However, it is enough to provide a basis for the analysis of QIs and the way they interact with quoted and non-quoted speech. This is the task I turn to in the next section.

⁶Following Ginzburg & Cooper (2014), one could propose that pure quotations make a statement about utterance types and thus generalize direct quotations, which make a statement about utterance tokens.

⁷I treat secondary implications introduced by mixed quotations as conventional implicatures (cf. Potts 2007) rather than presuppositions (see Maier 2014) mainly because they impose no preconditions on the common ground. What the common ground needs to supply is a source context for the quoted segment, not entail the implication.

3.2. Factoring in QIs

Let me recap the semantic properties of QIs in Bulgarian and German.

- (i) QIs have a mixed semantics. They make reference to both expressions and their denotations.
- (ii) QIs serve reportative functions. They require that the expressions they existentially quantify over be uttered in a previous conversation.
- (iii) QIs impose restrictions on the type of expressions they range over. Nominal QIs, which are the focus of this paper, can only range over referential expressions.

I propose the following lexical meaning for QIs.⁸

$$(30) \quad \text{QUOTATIONAL INDEFINITES}$$

$$\llbracket \text{QI} \rrbracket_{((e \rightarrow t) \rightarrow t) \times t}^{c,w} = \left\langle \begin{array}{l} \lambda P_{e \rightarrow t} \cdot \exists z_u P(\llbracket z \rrbracket^{c',w}), \\ \text{sp}(c) = \text{hr}(c') \ \& \ z \in \text{utt}(c') \ \& \ \text{r-expr}(w, z) \end{array} \right\rangle$$

According to this definition, QI meanings are truly two-dimensional. In their truth-conditional component, QIs compose with the rest of the sentence in the same way regular indefinites do. However, QIs range over expressions and conventionally implicate various restrictions on such expressions, i.e. that they are referential and that they were uttered in a conversation in which the current speaker participated as a hearer. The proposed meaning then directly derives the properties of QIs listed in (i)-(iii) above.

Notice that there are free occurrences of two metalanguage variables in (30). The expression z is introduced in the first meaning dimension but is free in the second meaning dimension. The source context c' is free throughout. I assume that the former variable is bound by the existential quantifier in the first dimension and that the latter variable is bound from previous discourse (just like in the case of mixed quotation). Although the proposed static semantics cannot make such discourse anaphoric dependencies formally explicit, these dependencies are naturally captured in dynamic systems that separate the primary and the secondary entailments of the sentence (see Nouwen 2007; Koev 2013; AnderBois et al. 2015).

Also, one should not miss the close similarity between (30) and the proposed meaning for mixed quotation in (29). Both meanings give rise to reportative implications, although mixed quotations

⁸I disregard the fact that QIs in Bulgarian and German can optionally take an NP complement, as in *edi-koj si student* or *der und der Student* ‘QLMASC student’. If a restrictor argument is indeed obligatory, the truth-conditional meaning of QIs should be amended to $\lambda P_{e \rightarrow t} \lambda Q_{e \rightarrow t} \cdot \exists z_u (P(\llbracket z \rrbracket^{c',w}) \ \& \ Q(\llbracket z \rrbracket^{c',w}))$. One could then assume that when an overt restrictor is missing, a covert NP with some underspecified meaning is present.

refer to a specific expression while QIs existentially quantify over expressions. In other words, QIs can be viewed as existential generalizations over quoted expressions. This consequence of the analysis does justice to the intuition that *Maria is dating QI* can be understood as a less informative counterpart of *Maria is dating “her boss”*.

I now derive the readings of QIs when they occur in quoted and non-quoted environments. Starting off with non-quoted environments, I assume that when QIs are syntactic arguments of predicates they undergo QUANTIFIER RAISING, i.e. they covertly adjoin to the host clause and their argument slot is lambda bound (see May 1977; Heim & Kratzer 1998). I assume that the lambda-abstracted predicate, which composes with the raised QI, is interpreted by the following predicate abstraction rule.

$$(31) \quad \text{TWO-DIMENSIONAL PREDICATE ABSTRACTION}$$

$$\text{If } \llbracket S \rrbracket_{t \times t}^{c,w,g} = \langle \llbracket S_1 \rrbracket^{c,w,g}, \llbracket S_2 \rrbracket^{c,w,g} \rangle, \text{ then } \llbracket i S \rrbracket_{(e \rightarrow t) \times t}^{c,w,g} = \langle \lambda x_e. \llbracket S_1 \rrbracket^{c,w,g[t_i/x]}, \llbracket S_2 \rrbracket^{c,w,g} \rangle.$$

As an illustration, consider the compositional interpretation of the Bulgarian clause *Maria xaresva edi-koj si* ‘Maria likes QI’. The second line in (32b) makes use of the predicate abstraction rule in (31).

$$(32) \quad \text{a. } \text{edi-koj si [1 [Maria xaresva } t_1 \text{]]}$$

$$\text{b. } \llbracket \text{Maria xaresva } t_1 \rrbracket^{c,w,g} = \langle \text{like}(w, \mathbf{maria}, g(t_1)), \top \rangle$$

$$\llbracket \text{[1 [Maria xaresva } t_1 \text{]]} \rrbracket^{c,w,g} = \langle \lambda x_e. \text{like}(w, \mathbf{maria}, x), \top \rangle$$

$$\llbracket \text{edi-koj si [1 [Maria xaresva } t_1 \text{]]} \rrbracket^{c,w,g}$$

$$= \left\langle \begin{array}{l} \exists z_u \text{like}(w, \mathbf{maria}, \llbracket z \rrbracket^{c',w,g}), \\ \mathbf{sp}(c) = \mathbf{hr}(c') \ \& \ z \in \mathbf{utt}(c') \ \& \ \mathbf{r-expr}(w, z) \end{array} \right\rangle$$

The resulting meaning asserts that Maria likes someone and conventionally implicates that the speaker heard a referential expression denoting that person in another speech context. This meaning will only be acceptable if embedded in a discourse which implies a secondary speech context that can be picked out by c' . For example, this could be the context introduced by verbs of indirect speech, which I assume have denotations along the following lines (cf. Kaplan 1989; Sæbø 2013).

$$(33) \quad \llbracket \text{say } S \rrbracket_{(e \rightarrow t) \times t}^{c,w} = \langle \lambda x_e. \exists c'_k \exists S'_u (S' \in \mathbf{utt}(c') \ \& \ x = \mathbf{sp}(c') \ \& \ \llbracket S' \rrbracket^{c'} \subseteq \llbracket S \rrbracket^c), \top \rangle$$

According to this interpretation rule, a sentence of the form *A said that S* requires that *A* uttered some expression S' which (as interpreted in the source context) entails S (as interpreted in the utterance context). The entailment condition is formally stated as $\llbracket S' \rrbracket^{c'} \subseteq \llbracket S \rrbracket^c$, where $\llbracket \alpha \rrbracket^c$, with

the world argument suppressed, is the INTENSION of α in a context c , i.e. a function from possible worlds w to $\llbracket \alpha \rrbracket^{c,w}$.⁹

With this meaning in place, the interpretation of (34a) will be as in (34b). This interpretation asserts that Ivan’s original utterance entails that Maria likes someone and conventionally implicates that Ivan used a referential expression to pick out that person. The derived meaning is fully in line with intuitions about the meaning of (34a).

- (34) a. Ivan kaza, že Maria xaresva *edi-koj si*.
Ivan say that Maria like QI.MASC
- b. $\llbracket \text{Ivan kaza edi-koj si [1 [Maria xaresva } t_1]] \rrbracket^{c,w}$
 $= \left\langle \begin{array}{l} \exists c'_k \exists S'_u (S' \in \mathbf{utt}(c') \ \& \ \mathbf{ivan} = \mathbf{sp}(c') \ \& \ \llbracket S' \rrbracket^{c'} \subseteq \lambda w'_s. \exists z_u \mathbf{like}(w', \mathbf{maria}, \llbracket z \rrbracket^{c',w})), \\ \mathbf{sp}(c) = \mathbf{hr}(c') \ \& \ z \in \mathbf{utt}(c') \ \& \ \mathbf{r-expr}(w, z) \end{array} \right\rangle$

Next, I discuss the readings of QIs in pure/direct quotation. Recall from (18) that in such cases QIs can be interpreted as part of the quotation (the verbatim reading) or as filling in for some referential expression present in the original utterance (the non-verbatim reading). The verbatim reading of (18) follows if we assume that direct speech verbs have lexical meanings as in (35) and make use of the interpretation rule for pure/direct quotations in (28).

$$(35) \quad \llbracket \text{say: “} S \text{”} \rrbracket^{c,w} = \langle \lambda x_e. \exists c'_k (\llbracket \text{“} S \text{”} \rrbracket^{c,w} \in \mathbf{utt}(c') \ \& \ x = \mathbf{sp}(c')), \top \rangle$$

$$(36) \quad \llbracket \text{Ivan kaza: “Maria izlizala s edi-koj si”} \rrbracket^{c,w}$$

$$= \langle \exists c'_k (\ulcorner \text{Maria izlizala s edi-koj si} \urcorner \in \mathbf{utt}(c') \ \& \ \mathbf{ivan} = \mathbf{sp}(c')), \top \rangle$$

In order to derive the non-verbatim reading of (18), I assume that QIs can raise out of quotation (cf. Sudo 2008; Maier 2014). Since syntactic movement out of quotation is generally prohibited, I hypothesize that it is possible for QIs because of their expression-based semantics. This assumption necessitates a way to handle traces inside quotation, which requires a slight reformulation of the original interpretation rule for pure/direct quotation in (28). The final version of the rule allows traces inside quotation to be substituted by other expressions without interpreting the quotation itself.

$$(37) \quad \text{PURE/DIRECT QUOTATION (final version)}$$

$$\llbracket \text{“} \alpha \text{”} \rrbracket_{u \times t}^{c,w,g[t_1/[z_1]^{c',w,g}, \dots, t_n/[z_n]^{c',w,g}]} = \langle \ulcorner \alpha \urcorner [t_1/z_1, \dots, t_n/z_n], \top \rangle,$$

⁹I am slightly abusing notation here. Since intensions are functions rather than sets, the entailment condition should rather read $\forall w' (\llbracket S' \rrbracket^{c'}(w') \Rightarrow \llbracket S \rrbracket^c(w'))$. Alternatively, the entailment condition could be written as $\{\} \llbracket S' \rrbracket^{c'} \subseteq \{\} \llbracket S \rrbracket^c$, where $\{\} \varphi_{s \rightarrow t} := \{w \in D_s \mid \varphi(w) = 1\}$.

where $\ulcorner \alpha \urcorner [t_1/z_1, \dots, t_n/z_n]$ is just like $\ulcorner \alpha \urcorner$ but with all occurrences of t_1, \dots, t_n in $\ulcorner \alpha \urcorner$ substituted by z_1, \dots, z_n (respectively)

The non-verbatim reading of (18) can now be derived as shown, where the pure/direct quotation rule is employed in the last step of the derivation. The meaning we arrive at correctly states that Ivan uttered the words “Maria izlizala s z ”, where z is some referential expression.

$$\begin{aligned}
 (38) \quad & \llbracket \text{edi-koj si [1 [Ivan kaza: “Maria izlizala s } t_1 \text{”}]] \rrbracket^{c,w,g} \\
 & = \left\langle \begin{array}{l} \lambda P_{e \rightarrow t} \exists z_u P(\llbracket z \rrbracket^{c',w,g})(\lambda x_e \exists c'_k (\llbracket \text{“Maria izlizala s } t_1 \text{”} \rrbracket^{c,w,g[t_1/x]} \in \mathbf{utt}(c') \ \& \ \mathbf{ivan} = \mathbf{sp}(c'))), \\ \mathbf{sp}(c) = \mathbf{hr}(c') \ \& \ z \in \mathbf{utt}(c') \ \& \ \mathbf{r-expr}(w, z) \ \& \ \top \end{array} \right\rangle \\
 & = \left\langle \begin{array}{l} \exists z_u \exists c'_k (\llbracket \text{“Maria izlizala s } t_1 \text{”} \rrbracket^{c,w,g[t_1/[z]^{c',w,g}] } \in \mathbf{utt}(c') \ \& \ \mathbf{ivan} = \mathbf{sp}(c')), \\ \mathbf{sp}(c) = \mathbf{hr}(c') \ \& \ z \in \mathbf{utt}(c') \ \& \ \mathbf{r-expr}(w, z) \end{array} \right\rangle \\
 & = \left\langle \begin{array}{l} \exists z_u \exists c'_k (\ulcorner \text{Maria izlizala s } z \urcorner \in \mathbf{utt}(c') \ \& \ \mathbf{ivan} = \mathbf{sp}(c')), \\ \mathbf{sp}(c) = \mathbf{hr}(c') \ \& \ z \in \mathbf{utt}(c') \ \& \ \mathbf{r-expr}(w, z) \end{array} \right\rangle
 \end{aligned}$$

3.3. Predicative QIs

The discussion so far has focused on QIs which range over nominal expressions. However, QIs are a much more diverse class and can range over various predicative expressions. For example, Bulgarian indefinites of the *edi-* series include forms like *edi-koga si* ‘sometime’ and *edi-kûde si* ‘somewhere’ and German has QI forms like *dann und dann* ‘sometime’ and *da und da* ‘somewhere’, which range over time or place adverbials. The formal account easily extends to predicative QIs as well. We only need to modify the truth-conditional component and impose appropriate restrictions on the expressions quantified over. Below, I state a plausible lexical meaning for Bulgarian *edi-kak si* ‘somehow’, which ranges over manner adverbials. (I assume that that ε is the logical type of events.)

$$(39) \quad \llbracket \text{edi-kak si} \rrbracket_{(\varepsilon \rightarrow t) \times t}^{c,w} = \left\langle \begin{array}{l} \lambda e_\varepsilon \exists Z_u \llbracket Z \rrbracket^{c',w}(e), \\ \mathbf{sp}(c) = \mathbf{hr}(c') \ \& \ Z \in \mathbf{utt}(c') \ \& \ \mathbf{manner-adv}(w, Z) \end{array} \right\rangle$$

According to (39), *edi-kak si* is a predicate of events. The requirement that it existentially quantifies over manner adverbials is directly stated in the second meaning dimension. A sentence as in (40a), when uttered in a context c and world w , will be assigned the meaning in (40b).

- (40) a. Ivan bjaga-l *edi-kak si*.
 Ivan run-EV QI
 ‘Ivan runs/ran in some previously mentioned manner.’

$$b. \left\langle \begin{array}{l} \exists e_\varepsilon \exists Z_u(\mathbf{run}(e) \ \& \ \mathbf{agent}(e) = \mathbf{ivan} \ \& \ [[Z]]^{c',w}(e)), \\ \mathbf{sp}(c) = \mathbf{hr}(c') \ \& \ Z \in \mathbf{utt}(c') \ \& \ \mathbf{manner-adv}(w, Z) \end{array} \right\rangle$$

Other predicative QIs can be analyzed in a similar way.

4. Conclusion

I have argued that QIs range over quoted speech and that this explains their semantic properties. More specifically, I claimed (i) that QIs range over linguistic expressions and make reference to both expressions and their denotations, (ii) that QIs require that the expressions they existentially quantify over are uttered in a previous conversation, and (iii) that QIs impose specific restrictions on the type of expressions they range over. The formal proposal was able to derive all of these properties. By adopting a logical type for linguistic expressions, we were able to account for the readings of QIs both inside and outside quotation.

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