

## The semantics of Irish determiner phrases

### Abstract

This paper studies the semantics of Irish determiner phrases (DPs). It is shown that, contrary to English DPs, Irish DPs cannot have predicative readings, unless they combine with additional morphological material. These results have implications for the crosslinguistic status of the silent type-shifting operators proposed in the literature to account for English DPs' readings.

### 1. Introduction

In English, singular determiner phrases (DPs) typically denote individuals (type  $e$ ) or sets of properties (type  $\langle\langle e,t\rangle,t\rangle$ ), as in (1a) and (1b) (Heim and Kratzer 1998). Some authors (Higgins 1973, Williams 1983, Partee 1987) have noted that they can also denote properties, as in (1c), where the DP *a good semanticist* is coordinated with the property-denoting adjective phrase (AP) *smart* (type  $\langle e,t\rangle$ ). Taking types  $e$  and  $\langle\langle e,t\rangle,t\rangle$  as the basic types of English DPs, Partee (1987) proposed that  $\langle e,t\rangle$  readings are made available by string-vacuous type-shifting operations applied to the basic types (see also Winter 2000).

- (1) a. [DP,  $e$  This man] came.  
 b. [DP,  $\langle\langle e,t\rangle,t\rangle$  A man] came.  
 c. Mary considers John [AP,  $\langle e,t\rangle$  smart] and [DP,  $\langle e,t\rangle$  a good semanticist].

The goal of this paper is to address the question of the status of these string-vacuous type-shifting operations that have been posited for English. Are they universal? If not, could it be because some languages need to express them overtly, by means of a morpheme? In this paper, these two questions will be addressed through an investigation of the semantics of Irish DPs. The Irish data were obtained through elicitation with an Irish native speaker. It will be shown that (i) no string-vacuous type-shifting operation from  $e$  or  $\langle\langle e,t\rangle,t\rangle$  to  $\langle e,t\rangle$  is available in Irish, (ii) DPs can be interpreted predicatively only if combined with additional morphological material, and (iii) among the three morphemes allowing for predicative readings of their DP complements, two can be considered straightforwardly as morphological

exponents of a type-shifting operator à la Partee. The consequence will be that combining Partee's (1987) system with an overt/covert parameter constitutes a promising approach to the typology of DPs' interpretations. Additional data from French and Russian point in the same direction.

Section 2 introduces a brief typology of DPs' semantic types based on English. In section 3, semantic tests used to identify DPs' semantic types (in particular, predicative vs. referential) are critically reviewed. Section 4 applies some of these tests to Irish data and show that Irish DPs cannot denote properties unless some overt material is added. Section 5 tackles the question of how this overt material combines semantically with the basic meanings of DPs to yield predicative readings: the predicative *mar* + DP and *ar* + superlative DP constructions are shown to lend themselves to a compositional account compatible with Partee's type-shifting system, whereas the *ina* + DP construction requires a syncategorematic treatment. Section 6 concludes with the implications of this study for the typology of DP meanings.

## 2. The typology of DPs' semantic types

This section first introduces a working definition for DPs and then presents the range of semantic types they can have in English, as well as the relationships between those, based on Partee's (1987) work.

### 2.1. A working definition for DPs

In what follows, the working definition in (2) is assumed for DPs. The paper focuses on singular DPs.

(2) Determiner Phrases (DPs) are constituents that necessarily have among their denotations individuals (type  $e$  DPs) or sets of sets of individuals (type  $\langle\langle e,t\rangle,t\rangle$ ).

This definition has both a syntactic and a semantic component. Syntactically, a DP is a constituent and therefore must be identifiable as such by constituency tests. Semantically, a DP denotes either an individual or a set of sets of individuals and therefore must be identified by semantic tests. The need to treat DPs as being able to denote sets of sets of individuals (or

equivalently sets of properties) dates back to Montague's work and arguments and references can be found in Heim and Kratzer's (1998) textbook.

As a consequence of the definition in (2), the presence of an overt determiner will not be a necessary criterion for a constituent to qualify as a DP. Languages like Russian do not have determiners, and yet would be treated under this analysis as languages having DPs. For these languages, some authors also report syntactic arguments to support the idea that they have null determiners (see Pereltsvaig 2007:21-23 on Russian), but here it will suffice to have a semantic argument, as long as the expression is a constituent. This question will turn out to be important for Irish. In particular, a semantic argument will be used to establish that, although the two sentences in (3a) and (3b) seem to have the same syntactic structure (with different word orders) and the same meaning (leaving aside the difference between the two proper names), they actually have quite different logical forms (LFs) and give rise to different inferences: Irish *dochtúir* in (3a) is an entity-denoting DP (type *e*) whereas French *docteur* in (3b) is a property-denoting NP (type  $\langle e, t \rangle$ ).

- (3) a. Is dochtúir Cathal. (Irish)  
       is doctor Cathal  
       Cathal is a doctor.
- b. Jean est docteur. (French)  
       Jean is doctor  
       Jean is a doctor.

## 2.2. DPs' semantic types in English

The expressions that satisfy the definition of DPs in (2) in English include definite descriptions, like *the King of France*, pronouns, like *he*, proper names, like *John*, quantifier phrases, like *every man*, and *wh*-phrases, like *which man* (Heim and Kratzer 1998, Karttunen 1977). Some authors (Higgins 1973, Williams 1983, Partee 1987) have noted these expressions can also have additional semantic types. In particular, they can denote properties, as the definite description *her husband* in (4a), the quantifier phrase *an authority on unicorns* in (4b), and the pronoun *that* in (4c).

- (4) a. Bill has become [<sub>DP,  $\langle e, t \rangle$</sub>  her husband]. (Higgins 1973:225)

b. Mary considers John competent in semantics and [<sub>DP, <e,t></sub> an authority on unicorns].  
(Partee 1987:360)

c. They said she was beautiful and she was [<sub>DP, <e,t></sub> that]. (Partee 1987:373)

Williams (1983) also notes that they can have even more complex semantic types when built with quantifiers quantifying over properties as *every* and *what* in (5a) and (5b). To make the availability of this reading clearer, sentence (5a) can be paraphrased as follows: at one time or another, every property that is relevant in the context of utterance (for instance being a doctor, being a student, being a linguist...) is such that John has had it. The quantifier *every* quantifies over properties (type <e,t>) and not over individuals, hence *everything* must be construed with a semantic type <<<e,t>,t>,t>. Similarly for sentence (5b), which can be paraphrased as follows: which of the properties that are relevant in the context are such that John has acquired them?

(5) a. At one time or another, John has been [<sub>DP, <<<e,t>,t>,t></sub> everything].

(Williams 1983:426)

b. [<sub>DP, <<<e,t>,t>,t></sub> What] has John become? (Williams 1983:426)

The range of semantic types available for DPs in English is summarized in Table 1.

	Simple	Complex
Basic types	e	<<e,t>,t>
Derived types	<e,t>	<<<e,t>,t>,t>

Table 1: Basic and derived semantic types for English DPs

The division between basic and derived types follows from the definition of DPs in (2), according to which sequences are identified as DPs if they have the basic types. They can also have additional derived types, but not necessarily. The motivation for distinguishing the derived from the basic types has to do with these readings' markedness within and across languages. Sequences that are traditionally identified as DPs based on their distributional properties denote individuals or sets of individuals in most of their uses in English.

Also, in some languages, the availability of the additional readings is more restricted. For instance, in French, the <e,t> reading of indefinite or definite DPs is available in complement position of *be* but not in small clauses (Roy 2005), as shown by the contrast between (6a) and

(6b). Adjectives are available in complement position of small clauses (6c). The derived readings are then attested in French in a subset of the contexts where they are attested in English. Irish will provide further evidence for a distinction between basic and derived types, as derived readings will turn out not to be attested in this language, even in contexts like (6a).

- (6) a. Paul est une référence en matière de licornes.  
 Paul is a reference in matter of licorns  
 Paul is a reference on unicorns.
- b. \*Marie le considère une référence en matière de licornes.  
 Mary him considers a reference in matter of licorns  
 Mary considers him an authority on unicorns.
- c. Marie le considère beau.  
 Marie him considers beautiful.  
 Marie finds him beautiful.

### 2.3. Type-shifting operator from $\langle\langle e,t\rangle,t\rangle$ to $\langle e,t\rangle$

How can these different semantic types be related together? Partee (1987) proposed a general generative mechanism producing type  $\langle e,t\rangle$  expressions from type  $\langle\langle e,t\rangle,t\rangle$  expressions.<sup>1</sup>

Consider a domain of individuals  $D$  with only four individuals, a black square  $s_b$ , a white square  $s_w$ , a black circle  $c_b$ , and a white circle  $c_w$ . According to the classic analysis of determiner  $a$  as an existential quantifier, the expression  $a$  *square* denotes the set of properties that are true of at least one square. Now consider four basic predicates *square*', *circle*', *black*', and *white*' and a conjunction  $\&$ . From those, eight predicates denoting non-empty subsets of the domain  $D = \{s_b, s_w, c_b, c_w\}$  can be construed, namely *square*', *circle*', *black*', *white*', *square*' & *black*', *square*' & *white*', *circle*' & *black*', and *circle*' & *white*'. Among those sets, the set denoted by  $a$  *square* will contain all the sets that contain at least one square. This set contains  $\{s_b\}$ ,  $\{s_w\}$ ,  $\{s_b, s_w\}$ ,  $\{s_b, c_b\}$ ,  $\{s_w, c_w\}$ ,  $\{s_b, c_b, c_w\}$ , etc. The union of the singleton sets in the denotation of  $a$  *square*,  $\{s_b\}$  and  $\{s_w\}$ , is the set  $\{s_b, s_w\}$ , namely the denotation of *square*', the set of squares in  $D$ . The operation that takes the union of all the singleton sets in the denotation of quantifier is a mapping from  $\langle\langle e,t\rangle,t\rangle$  denotations to  $\langle e,t\rangle$  denotations. In the example above, it takes the meaning of  $a$  *square*, a set

<sup>1</sup> Readings of DPs with type  $\langle\langle\langle e,t\rangle,t\rangle,t\rangle$  will not be further discussed in this paper. Type  $e$  DPs can always be reanalyzed as type  $\langle\langle e,t\rangle,t\rangle$  DPs, where the DP denotes all the properties that are true of an individual instead of the individual himself.

of sets of individuals, and returns a  $\langle e,t \rangle$  type-shifted meaning for *a square*, equivalent to the meaning of *square*.

The same operation can be applied to the meaning of *the black circle*. Assume a quantificational analysis of singular definite determiner phrases, where the definite description *the black circle* denotes the set of properties that are true of exactly one black circle (the semantic type is  $\langle \langle e,t \rangle, t \rangle$ ). Then, *the black circle* denotes the set  $\{ \{ c_b \} \}$  (instead of  $c_b$  under a referential analysis of singular definite descriptions). Now, applying the same type-shifting operation from above, i.e. taking the union of the singleton sets in the set denoted by *the black circle*, results in the type-shifted meaning  $\{ c_b \}$  for the expression *the black circle* (with semantic type  $\langle e,t \rangle$ ).

### 3. Semantic tests

Semantic tests have been proposed to distinguish predicative and nonpredicative readings of DPs. Higgins' (1973) tests to identify DPs' predicative readings are first reviewed and shown to be problematic (section 3.1). Section 3.2 presents a test to identify DPs' predicative readings from Partee (1987) and a test to identify DPs' referential readings from Roy (2005).

#### 3. 1. Higgins' tests

Higgins (1973) proposed two tests to identify DPs with predicative readings. The first test applies to definite DPs like *my sister* in (7) and goes as follows: if a definite DP does not convey a uniqueness presupposition in a given context, then it denotes a property in this context. Higgins (1973) used this test to support the claim that *my sister* denotes an individual in (7a) and a property in (7b).

- (7) a. That's  $[_{DP} \text{ my sister}]$ . (type  $e$  according to Higgins 1973)  
 b. She's  $[_{DP} \text{ my sister}]$ . (type  $\langle e,t \rangle$  according to Higgins 1973)

This test is problematic for two reasons. First, it is unclear that (7a) but not (7b) comes with a uniqueness presupposition. Second, it is hard to use the intuition about the absence of uniqueness presuppositions to decide on the semantic type of the post-copular DP. The question is as follows: if there is no uniqueness presupposition, does it entail that the DP has a

predicative reading? There are indeed three semantic types that are compatible with a DP coming without uniqueness presuppositions. It could be a type  $\langle e, t \rangle$  DP. It could be a quantifier phrase of type  $\langle \langle e, t \rangle, t \rangle$ , where the determiner is an existential quantifier (e.g. *a sister of mine*). Or it could be a definite description of type  $e$  with a uniqueness presupposition that got cancelled by global accommodation (von Stechow 2004). Cancellation of a uniqueness presupposition for a definite description is possible even in positions where it clearly denotes an individual, as in (8a). (8a) can be used felicitously even if the speaker has more than one sister. The fact that this presupposition is cancelled in this case rather than absent can be shown by the contrast between (8a) and (8b): if a speaker has just a single sister, she will generally prefer to say (8a) over (8b), preferring the expression that maximizes the presupposition (Heim 1991).

- (8) a. My sister came.  
b. A sister of mine came.

The same preference for (9a) over (9b) is found, in case the speaker has just one sister. This suggests that the absence of uniqueness presupposition detected by Higgins in (7b) could come from accommodation of the presupposition of a type  $e$  expression.

- (9) a. She is my sister.  
b. She is a sister of mine.

In Irish, the way sentences (7) and (8) are interpreted is also consistent with the presupposition cancellation account. The Irish informant reported that (10a) does not entail that the speaker has just one sister. She also reported that, among (10a) or (10b), she would prefer uttering (10a) if she had just one sister. One can conclude that Irish *mo* comes with a uniqueness presupposition that can be cancelled.

- (10) a. Tháinig mo dheirfiúr  
come.past my L-sister  
My sister came.  
a. Tháinig deirfiúr liomsa  
come.past sister with.me-emph  
A sister of mine came.

Going back to Higgins' original examples in (7), the same contrast was found in Irish as in English. The informant reported that (11a) does not entail that the speaker has just one sister. She also reported that she would prefer (11a) over (11b) in case she had just one sister. These results show that the absence of uniqueness presupposition does not need to be traced back to a  $\langle e, t \rangle$  reading of *mo dheirúr* in (11a), but can be accounted for by an independent mechanism of presupposition cancellation.

- (11) a. *Sín í mo dheirfiúr.*  
 it she my L-sister  
 That's my sister.
- b. *Is deirfiúr liomsa í sin.*  
 cop sister with-me.emph she it  
 It's a sister of mine.

The second test proposed by Higgins (1973) is also problematic because it assumes that DPs denote individuals rigidly. Higgins (1973:226) argues that the fact that the syllogism in (12) does not follow is evidence for the complement of *become* requiring a  $\langle e, t \rangle$  argument (*her* is assumed to have the same referent in both (12a) and (12b)). However, if DPs may denote individuals non rigidly, namely their denotation can change depending on the tense and world of evaluation (Musan 1995), then this problematic syllogism is no longer predicted to hold: the DP *her husband* in (12a) and in (12b) may refer to different people because the time of evaluation of the DP may differ in the two cases.

- (12) a. Bill has become her husband.  
 b. Her husband is tall.  
 c. Therefore, Bill has become tall.

A clearer example is provided by sentence (13). If the definite description was interpreted rigidly, with the evaluation time being the moment of utterance, then this sentence, uttered in 2014, would mean that John Kennedy became Obama. The fact that this is not the meaning of (13) can be predicted under a type *e* approach of the meaning of *the president of the USA* where the time of evaluation of the DP shifts with the time of evaluation of the sentence.

(13) John Kennedy became the president of the USA.

### 3.2. Partee's and Roy's tests

Partee (1987) provides what will be considered as the crucial test to identify predicative readings of DPs: whether they can be coordinated with an adjective phrase. This test is based on the assumption (i) that natural language coordination *and* denotes a function that takes expressions of the same semantic type as arguments and (ii) that adjectives can only be of type  $\langle e,t \rangle$ . This test establishes that the DP *a good semanticist* can have a type  $\langle e,t \rangle$  interpretation in English (14a), but that the corresponding DP *un bon sémanticien* 'a good semanticist' cannot in the parallel French sentence (14b).<sup>2</sup>

- (14) a. Mary considers John smart and a good semanticist.  
 b. \*Marie considère Jean intelligent et un bon sémanticien.

To identify referential readings of DPs, the identity question test will be used (a version of this test can be found in Roy 2005). A DP has a referential reading if it can be used to answer a question asking about someone's identity. In (15), the question *Who is John?* can be answered with a post-copular DP (15b) but not with any verbal phrase (15a). This difference can be accounted for if the answer to an identity question needs to be an entity-denoting expression.

- (15) a. Who is John? - #He works at the hospital.  
 b. Who is John? - He is my doctor.

## 4. Irish DPs

Section 4.1 looks at the interpretation of DPs in Irish copular sentences - a topic that has already gathered a lot of attention, in particular among syntacticians (McCloskey and Hale

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<sup>2</sup> The fact that the unacceptability of (14b) does not have to do only with the impossibility to conjoin phrases of different syntactic types is conformed by the observation that (ib) is not good either.

- (i) a. Marie considère Jean intelligent.  
 b. \*Marie considère Jean un bon sémanticien.

1983, Carnie 1995, Doherty 1996). Section 4.2 focuses on the interpretation of DPs after *become* verbs and section 4.3 on the interpretation of DPs as complements of small clauses.

#### 4.1 Copular sentences

Irish has two elements that correspond to the single *be* verb in English, *is* and *ta*. The first one is labeled identificational, and the second one predicational by Doherty (1996). A further complication has to do with the fact that the *is*-copular sentence comes with two different word orders, depending on the nature of what would be the post-copular phrase in English. When it is an indefinite, this constituent comes before the subject. When it is a definite, it comes after the subject. Carnie (1995) calls the first one predicational *is* and the second equative *is*. The three types are presented in (16), along with their names borrowed from Doherty (1996) and Carnie (1995). These names should just be taken as labels for now and do not entail a particular semantic analysis. Following Doherty (1996), *tá* is labelled as *be* and *is* as COP (for copula).

- (16) a. Tá Seán ina dhochtúir. (Predicational)  
       be Sean in.his doctor.  
       Sean is a doctor.
- b. Is é Seán an dochtúir. (Identificational equative)  
       COP he Sean the doctor  
       Sean is the doctor.
- c. Is dochtúir (é) Seán. (Identificational predicational)  
       COP doctor he Sean  
       Sean is a doctor.

The identity question test may be used to determine the semantic types of the expressions *ina dhochtúir* in (16a), *an dochtúir* in (16b), and *dochtúir* in (16c). The results are presented in (17): (17a) asks about the identity of John and three answers are considered in (17b)-(17d).

- (17) a. Cé hé Seán?  
       Who he Sean?  
       Who is Sean?
- b. #Tá Seán ina dhochtúir.

is Sean in-his doctor

Sean is a doctor.

c. Is é Seán an dochtúir.

cop he Sean the doctor

Sean is the doctor.

d. Is dochtúir (é) Seán.

cop doctor he Sean

Sean is a doctor.

Unsurprisingly, (17b) makes a bad answer and (17c) a good answer to the question in (17a): the expression *ina dhochtúir* has a nonreferential (or nonquantificational) meaning in (17a) and the expression *an dochtúir* has a referential (or quantificational) meaning in (17c). The case of (17d) is more interesting, given the somewhat contradictory label given to this case in (16c) (i.e. identificational predicational). The identity question test shows that (17d) patterns with (17c) and thus that *dochtúir* is a referential (or quantificational) DP and not a predicational NP. This result is not trivial given the fact that other languages like French treat bare nominals like *dochtúir* in (17d) as predicational NPs, as shown by the results of the same test applied to French in (18). (18b) with a bare nominal in postcopular position is not a good answer to the question in (18a). French (18b) patterns like Irish (17b), with the *ina* construction, and French (18d), with an indefinite determiner, patterns like Irish (17d), with a bare nominal. Unsurprisingly, (18c), with the definite DP, patterns like Irish (17c).

(18) a. Qui est Jean ?

Who is Jean

Who is Jean?

b. #Jean est docteur.

Jean is doctor

Jean is a doctor.

c. Jean est le docteur.

Jean is the doctor

Jean is the doctor.

d. Jean est un docteur.

Jean is a doctor

Jean is a doctor.

These results point to the following conclusion: Irish *is* and *tá* differ in the semantic type of their second argument,  $e$  or  $\langle\langle e,t\rangle,t\rangle$  in the former case and  $\langle e,t\rangle$  in the latter case. Doherty (1996) and Carnie (1995) report three counterexamples to this claim (19), where *is* clearly cooccurs with predicative expressions (type  $\langle e,t\rangle$ ).

- (19) a. *Is as Inis Eoghain é.*  
 cop out-of Inish Owen  
 He is from Inish Owen.
- b. *Is ó Bhaile Átha Cliath iad.*  
 cop from Dublin they  
 They are from Dublin.
- c. *Is liomsa an t-Alfa Romeo sin.*  
 cop with.me-emph the Alfa Romeo that  
 I own that Alfa Romeo. (lit. ‘That Alfa Romeo is with me’)

The informant also accepts the sentences in (19) as grammatical. Also, she judged the same sentences with *tá* instead of *is* in (20) as agrammatical.

- (20) a. *\*T’ a s’ e as Inis Eoghain*  
 be he out-of Inish Owen  
 He is from Inish Owen.
- b. *\*Tá siad ó Bhaile Átha Cliath.*  
 be they out-of Dublin  
 They are from Dublin.
- c. *\*Tá an t-Alfa Romeo sin liomsa.*  
 be the Alfa Romeo that with.me-emph  
 I own that Alfa Romeo.

Also, she judged the sentences in (19) as being good answers to the questions in (21), but not to the questions in (22), confirming Doherty’s (1996) and Carnie’s (1995) claim that the sentences in (19) are predicative sentences.

- (21) a. Cérbh as hé?  
Where from he  
Where is he from?  
b. Cérbh as iad?  
where from they  
Where are they from?  
c. Cé leis?  
Who with.him  
Whose is it?
- (22) a. Cé hé?  
Who he  
Who is he?  
b. Cé siad?  
who they  
Who are they?  
c. Céard an t-Alfa Romeo?  
what the Alfa Romeo sin  
What is that Alfa Romeo?

Following Doherty (1996) and Carnie (1995), prepositions *as*, *ó*, and *le* are analyzed as lexically-specified exceptions that must combine syntactically with *is* but form type <e,t> expressions with their arguments.

These exceptions put aside, the results of the identity question test provide good evidence that the basic split between *is* and *tá* is semantic and has to do with semantic type considerations rather than with more subtle semantic distinctions (see Carnie 1995 for arguments against the individual/stage level distinction proposed by Doherty 1996).

The coordination test also suggests that *an dochtúir* and *dochtúir* have the same semantic type and corroborates the results in (17). The two constituents *ealaontoir* and *an dochtúir is fearr i bParaás* in (23a) and (23b) can be coordinated to yield the grammatical sentence in (23c).

- (23) a. Is ealaontoir é Seán.  
 COP artist he Sean  
 Sean is an artist.
- b. S' é Seán an dochtúir is fearr i bParaás.  
 COP he Sean the doctor cop preferable in Paris  
 Sean is the best doctor in Paris.
- c. Is ealaontoir é Seán agus an dochtúir is fearr i bParaás.  
 COP artist he Sean and the doctor cop preferable in Paris  
 John is an artist and the best doctor in Paris.

There is evidence that DPs *an dochtúir* and *dochtúir* cannot be vacuously type-shifted to denote properties. For instance, the informant reported that these constituents cannot be coordinated with an adjective under *tá*. To make sure that this incompatibility was not due to a syntactic incompatibility, the informant was also asked whether it is possible to coordinate an indefinite DP like *dochtúir* with one of the prepositional phrases that are allowed to occur with *is* and with a predicative interpretation (see examples in (19)). This made it possible to keep the syntax constant as much as possible and just play with the semantic types. As expected, this is not possible: (24) is not acceptable.

- (24) \*Is dochtúir agus as Inis Eoghain é.  
 Cop doctor and out-of Inish Owen he  
 He is a doctor and from Inish Owen.

Can pronouns anaphorize a property like *go deas* 'nice' in (25), as they do in English (with the proredicate *that*) and in French (with the propredicate *le*)?

- (25) Tá Seán go deas.  
 be Sean ptcl nice  
 Sean is nice.

The data in (26) and (27) further suggest that pronouns cannot serve as propredicates in Irish. The sentences that show that this option is out in Irish are sentences (26d) and (27d), where the neuter pronoun *sin* cannot anaphorize a property. The other sentences show how Irish

speakers anaphorize a property denoted by an adjective: by ellipsis in (26a), (26b), (27b), and (27c) or by anaphorizing the whole sentence with the neuter pronoun *sin* in (26c) and (27a).

(26) a. Tá sé.

Be he

He is so.

b. Tá sé go deimhin.

Be he ptcl sure

He is so indeed.

c. Tá sin/\*s'e amhlaidh.

Be it/he so

It/\*He is so.

d. \*Tá sé sin.

Be he it

He is that.

(27) a. Duirt siad go raibh sí go h'alainn agus b' fhíor sin.

Say-past they that be.past she ptcl beautiful and be.past L-true sin.

They said she was beautiful and that was true.

b. Duirt siad go raibh sí go h'alainn agus bhi sí.

Say-past they that be.past she ptcl beautiful and be.past she.

They said she was beautiful and she was.

c. Duirt siad go raibh sí go h'alainn agus bhi sí go deimhin.

Say-past they that be.past she ptcl beautiful and be.past she ptcl sure.

They said she was beautiful and she was for sure.

d. Duirt siad go raibh sí go h'alainn agus bhi sí sin.

Say-past they that be.past she ptcl beautiful and be.past she it.

They said she was beautiful and she was that.

However, pronouns can occur in the *is* copular sentence where they denote individuals.

Pronoun *é* can occupy the same slot as the referential expression *Seán* in sentences (28) and (29).

(28) a. sin é Seán

it he Sean  
 That's Sean.  
 b. sin é é  
 it he he  
 That's him.

(29) a. s' é sin Seán  
 Cop he it Sean  
 That's Sean.  
 b. s' é sin é.  
 Cop he it he  
 That's him.

Also, the inanimate interrogative pronoun *céard* cannot quantify over a property in a *tá* copular sentence, as shown by the inacceptability of (30).

(30) \*Céard ata Sean?  
 What C-is Sean  
 What is Sean?

Can the universal quantifier phrase *gach rud* 'everything' be used to quantify over properties in Irish, as in English (31)?

(31) At one time or another, John has been everything.

To elicit this kind of sentence, the informant was given the following context. In a small village, Sean does all the different jobs that one can think of: he is a doctor, a professor, etc... The informant was asked how she would translate the sentence *Sean is everything* in this context. Sentence (32a) with the quantified DP in postcopular position is not an option. Instead, the informant indicated she would use either (32b) and (32c), which have both very different structures from the English target sentence in (31).

(32) a. \*Is é Seán gach rud.  
 Cop he Sean everyt thing

Sean is everything.

b. Tá chuile cheird ag Seán.

be every occupation to Sean

Sean has every occupation.

c. Tá lámh ag Seán i ngach rud.

be hand to Sean in every thing

Sean has his hand in everything.

The data seen so far suggest that DPs - definite descriptions, indefinite DPs, pronouns, wh-words, or universally quantified DPs - cannot denote properties (or sets of sets of properties for the quantified DPs) in copular sentences. However, DPs may receive a predicative interpretation when embedded in a larger constituent.

One of these constructions has already been introduced earlier: this is the *ina* construction, exemplified again in (33), for each of the three grammatical persons (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>d</sup>) and two numbers (singular, plural). I am a doctor, You are a doctor, etc.).

(33) a. Tá mé i mo dhochtúir.

I am a doctor.

b. Tá tú in do dhochtúir.

You are a doctor.

c. Tá sí/sé ina dochtúir/dhochtúir.

She/He is a doctor.

d. Tá muid ina ndochtúirí.

We are doctors.

e. Tá sibh in bhur ndochtúirí.

You are doctors.

f. Tá siad ina ndochtúirí.

They are doctors.

Syntactically, the *ina* construction comprises the preposition *i* ‘in’ followed by a possessive DP, as can be seen in the sentences in (34), which are parallel to the sentences in (33).

(34) a. Tá mé i mo theach.

I am in my house.

b. Tá tú in do theach.

You are in your house.

c. Tá sí/sé ina teach/theach.

She/He is in her/his house.

d. Tá muid inár dtithe.

We are in our houses.

e. Tá sibh in bhur dtithe.

You are in your houses.

f. Tá siad ina dtithe.

They are in their houses.

The second construction involving a DP and that can denote a property is the *ar* + superlative DP construction. The superlative DP cannot occur in *tá* copular sentence, unless it is the complement of the preposition *ar* ‘on’, as shown in (35).

(35) Tá sé \*(ar) an dochtúir is fearr san áit.

Be he on the doctor cop preferable in-the place

He is the best doctor in the place.

The fact that these two expressions (*ina* + DP and *ar* + superlative DP) denote properties can be shown by their ability to be coordinated with an adjective, apparent in the sentences in (36).

(36) a. Tá sé cliste agus ina dhochtúir.

be he smart and in-his doctor

He is smart and a doctor.

b. Tá sé cliste agus ar an dochtúir is fearr san áit.

be he smart on the doctor cop preferable in-the place

He is smart and the best doctor in the place.

The data in (37) show how the acceptability of *become* sentences varies as a function of the nature of the postcopular constituent. *Become* sentences are good with adjectives, as in (37a), and prepositional phrases, as in (37d) and (37e), but they are bad with DPs *dochtúir* and *an*

*dochtúir* in (37b) and (37c). These results are compatible with the hypothesis according to which *d'éirigh* requires a type  $\langle e,t \rangle$  argument and DPs *dochtúir* and an *dochtúir* cannot be vacuously type-shifted to  $\langle e,t \rangle$ .

- (37) a. D'éirigh Seán bocht/feargach.  
 arise.past Sean poor/angry  
 Sean became poor/angry.
- b. \*D'éirigh Seán dochtúir.  
 arise.past Sean doctor  
 Sean became a doctor.
- c. \*D'éirigh Seán an dochtúir.  
 arise.past Sean the doctor  
 Sean became the doctor.
- d. D'éirigh Seán ina dochtúir.  
 arise.past Sean in-his doctor  
 Sean became a doctor.
- e. D'éirigh Seán mar dochtúir.  
 arise.past Sean as doctor  
 Sean became a doctor.

Other ways of saying *He became a doctor* are presented in (38). These data point to the same conclusion: a DP can occur in post-copular position when complement of *ina*, as in (38a), or *mar*, as in (38b). In (38c), where the DP *dochtúir* appears without any preposition, the syntactic structure is completely different: the third person pronoun is no longer subject of the sentence but complement of a preposition, and *dochtúir* occupies the subject position.

- (40) a. Chuaigh sé ina dhochtúir.  
 go.past he in-his L-doctor  
 He became a doctor.
- b. Chailigh Seán mr dochtúir.  
 Become.past Sean as doctor  
 Sean became a doctor.
- c. Rinneadh dochtúir dé.  
 do.past.impers doctor of-him

He became a doctor (literally, A doctor was made of him).

The Irish verb *faighim* ‘I find’ can be construed with a small clause complement. The second constituent of a small clause can be an adjective (39a) or a prepositional phrase headed by *ina* (39b) or *ar* (39c), but not a DP (39c)-(39d).

- (39) a. *Faighim é (an-)cliste.*  
 Find.pres.1sg him (ptcl-)smart  
 I find him (very) smart.
- b. *Faighim é ina dhea-dhochtúir.*  
 Find.pres.1sg him in-his L-good doctor  
 I find him a good doctor.
- c. \**Faighim dea-dochtúir é*  
 find.pres.1sg good-doctor him  
 I find him a good doctor.
- d. *Faighim é \*(ar) an dochtúir is fearr*  
 Find.pres.1sg him on the doctor cop preferable  
 I find him the best doctor.

The data in (40) confirm that DPs cannot denote properties (see (40a) and (40b) where DPs cannot be coordinated with adjectives), unless they are included in a larger prepositional phrase (see (40c) and (40d) where the *ina-* and *ar-*prepositional phrases can be coordinated with adjectives). Sentence (40e) shows that the *ina-* and *ar-*prepositional phrases have the same semantic type: the two constituents can be coordinated under *agus* ‘and’.

- (40) a. \**Faighim é cliste agus dea-dochtúir*  
 find.pres.1sg him smart and good-doctor  
 I find him smart and a good doctor.
- b. \**Faighim é cliste agus an dochtúir is fearr.*  
 find.pres.1sg him smart and the doctor cop preferable  
 I find him smart and the best doctor.
- c. *Faighim é cliste agus ina dhea-dhochtúir.*  
 find.pres.1sg him smart and in-his good-doctor  
 I find him smart and a good doctor.

d. Faighim é cliste agus ar an dochtúir is fearr.

find.pres.1sg him smart and the doctor cop preferable

I find him smart and the best doctor.

e. Faighim é ina dhia-cheile agus \*(ar) an dochtúir is fearr san áit.

find.pres.1sg him in-his good husband and the doctor cop preferable in-the place

I find him a good husband and the best doctor in the place.

The same point can be made using another environment allowing small clauses in Irish, namely the complement position of *agus* when it is used as an adjunct to a sentence (Carnie 1995). The DP *dlíodóir* cannot occur in this environment, as shown in (41b), unless it is preceded by a preposition, as in (41c) and (41d). In sentence (41d), as well as in the other sentences with *mar*, there is no similarity entailment: *mar dlíodóir* does not mean similar to a lawyer, but being a lawyer.

(41) a. agus é i gCalifóirnia (Carnie 1995)

and he in California

while being in California

b. \*agus é dlíodóir

and he lawyer

while being a lawyer

c. agus é ina dhlíodóir

an he in-his L-lawyer

while being a lawyer.

d. agus é mar dlíodóir

and he as lawyer

while being a lawyer.

## 5. Analysis

The survey presented in the previous section suggests that DPs cannot denote properties in Irish, contrasting with English DPs. They can denote properties only when they form a complex with a preposition among *i*, *mar*, and *ar*. These differences are summarized in Table 2.

		e	$\langle\langle e,t\rangle,t\rangle$	$\langle e,t\rangle$
English	DP	ok	ok	ok
Irish	DP	ok	ok	*
	P DP	*	*	ok

Table 2: Semantic types available for DPs in English and Irish

An attractive way of accounting for the differences and similarities between the semantics of Irish and English DPs consists in adopting Partee's (1987) analysis and enriching it with an overt/covert parameter: the type-shifting operators posited by Partee would be covert in English and overt in Irish, morphologically realized by the prepositions *i*, *mar*, and *ar*.

In what follows the feasibility of this analysis is evaluated. For each preposition *i*, *mar*, and *ar*, the meaning of the complement DP will first be computed. Then the meaning of the complex [P DP] will be computed following the hypothesis that P is a type-shifting operator à la Partee. Third, the resulting  $\langle e,t\rangle$  meaning will be compared to the actual meaning of the P(DP) constituent.

Preposition *mar*.

Assume that *mar* combines with an existentially quantified DP *dochtúir*<sub>DP</sub> 'a doctor', formed from a noun *dochtúir*<sub>N</sub>, whose meaning is defined in (42a). In set-theoretic terms, this DP denotes the set of properties that are true of at least one doctor, formally defined in (42b). Now assume that *mar* is a Partee-style type shifting operator, namely it takes as argument a set of sets of individuals and returns the union of the singleton sets in this set. The meaning of *mar dochtúir*<sub>DP</sub> resulting from applying the meaning of *dochtúir*<sub>DP</sub> to that of *mar* is formally defined in (42c).

(42) a.  $[[\text{dochtúir}_N]] = \{x_e: x \text{ is a doctor}\}$

b.  $[[\text{dochtúir}_{DP}]] = \{P_{\langle e,t\rangle}: \exists x \in [[\text{dochtúir}_N]] [P(x)]\}$

c.  $[[\text{mar dochtúir}_{DP}]] = \cup \{a\} \in [[\text{dochtúir}_{DP}]]$  where  $\{a\}$  is a variable over singleton sets

Now, it can be proven that *mar dochtúir*<sub>DP</sub> denotes the set of doctors. For each individual in the set of doctors to be distinct from the others, there must be at least one property that is only

true of him. Going back to the initial example with squares and circles, the black circle is different from all the other individuals by being the only individual that is a member of the *black' & circle'* set. This means that, for each doctor in  $[[\text{dochtúir}_N]]$ , there will be at least one singleton set containing him in the set of sets of individuals  $[[\text{dochtúir}_{DP}]]$ . As a consequence, the union of those singleton sets will be equal to the set of doctors. This result is represented in (43).

$$(43) \quad [[\text{mar} [\text{dochtúir}_{DP}]]] = [[\text{dochtúir}_N]] = \{x_e: x \text{ is a doctor}\}$$

Does the predicted meaning for *mar dochtúir*<sub>DP</sub> corresponds to its actual meaning? As far as semantic type goes, the prediction is borne out: *mar dochtúir*<sub>DP</sub> is correctly predicted to be of type  $\langle e,t \rangle$ . Also, in the examples cited above, *mar dochtúir*<sub>DP</sub> denotes the set of doctors.

Preposition *ar*.

Assume *ar* combines with a definite DP *an dochtúir is fearr*<sub>DP</sub> 'the best doctor', interpreted as a set of properties, namely the set of properties that are true of the unique individual in the set  $[[\text{dochtúir is fearr}_{NP}]]$ . Now assume that *ar* has the same meaning as *mar*. Then, the meaning of  $[[\text{ar} [\text{an dochtúir is fearr}_{DP}]]]$  is the meaning formalized in (44c).

- (44) a.  $[[\text{dochtúir is fearr}_{NP}]] = \{x_e: x \text{ is the best doctor}\}$  if there is a single best doctor;  $\emptyset$ , otherwise
- b.  $[[\text{an dochtúir is fearr}_{DP}]] = \{P \langle e,t \rangle : \exists x \in [[\text{dochtúir is fearr}_{NP}]] [P(x)]\}$
- c.  $[[\text{ar} [\text{an dochtúir is fearr}_{DP}]]] = \cup \{a\} \in [[\text{an dochtúir is fearr}_{DP}]]$  where  $\{a\}$  is variable over singleton sets

Now, we can prove that *ar an dochtúir is fearr*<sub>DP</sub> denotes the singleton set containing the best doctor. Indeed, all the singleton sets contained in  $[[\text{an dochtúir is fearr}_{DP}]]$  will contain the best doctor and no singleton set will contain anyone else - otherwise, then they would not be members of  $[[\text{an dochtúir is fearr}_{DP}]]$ . Taking the union of those singleton sets will return the singleton set containing the best doctor.

$$(45) \quad [[\text{ar} [\text{an dochtúir is fearr}_{DP}]]] = [[\text{dochtúir is fearr}_{NP}]] = \{x_e: x \text{ is the best doctor}\}$$

The meaning predicted for *ar an dochtúir is fearr*<sub>DP</sub> matches the actual meaning of this expression: *ar an dochtúir is fearr*<sub>DP</sub> is correctly predicted to denote a set of individuals and therefore can be coordinated with an adjective; also, it is correctly predicted to come with a uniqueness presupposition and denotes the singleton set containing the best doctor.

Preposition *i*.

Applying the same approach for the preposition *i* will not work: the fact that *i* takes a possessive DP as complement yields an undesirable meaning for the whole construction. If the possessive pronoun and the sentential subject do not match (say the possessive denotes an individual  $y$  and the sentential subject an individual  $z$ ), then *ina dhochtúir* should denote the singleton set containing the unique doctor of  $y$ , as shown in (46) ( $g$  is the assignment function that provides a referent for the occurrence  $a_1$  of the possessive). If the possessive pronoun and the sentential subject corefer, then *ina dhochtúir* should denote the singleton set containing the unique doctor of individual  $y$ .

- (46) a.  $[[\text{dhochtúirN}]]_g = \{ \langle x; y \rangle : x \text{ is a doctor of } y \}$   
 b.  $[[a_1 \text{ dhochtúirNP}]]_g = \{ x : x \text{ is a doctor of } g(1) \}$   
 c.  $[[a_1 \text{ dhochtúirDP}]]_g = \{ P \langle e, t \rangle : \exists x \in [[a_1 \text{ dhochtúir}_{NP}]] [P(x)] \}$   
 d.  $[[\text{in-}[a_1 \text{ dhochtúirDP}]]]_g = \cup \{ a \} \in [[a_1 \text{ dhochtúirDP}]]_g$  where  $\{ a \}$  is a variable over singleton sets

The meaning derived in (46d) is problematic in two respects. First, *dochtúir* is wrongly predicted to behave as a two-place predicate in this type of sentences. Second, the *ina* construction is wrongly predicted to come with a uniqueness presupposition. This is because the meaning of the whole expression is built from the meaning of its parts, and among them is the possessive pronoun which comes with a uniqueness presupposition. The mechanism proposed by Partee does not cancel the presuppositions of the embedded DP and this is desirable for treating the *ar an dochtúir is fearr* ‘the best doctor’ case. The fact that possessive pronouns usually come with uniqueness presuppositions even when complement of preposition *i* is shown by the pair of sentences in (47). When a speaker has just one house, he will prefer to utter (47a) over (47b). This can be accounted for by assuming that the

possessive *mo* in (47a) comes with a uniqueness presupposition, that the indefinite in (47b) does not, and that speakers follow a ‘Maximize presupposition’ principle.

(47) a. Tá sé i mo theach

Be he in my L-house

He is in my house.

b. Tá sé i dteach liomsa

be he in house with-me

He is in a house of mine.

These problematic predictions could be avoided by considering that the possessive pronoun is not interpretable in this construction. However, one would have to account for why possessive pronouns can be interpreted in some contexts and not in others. Moreover, if the possessive pronoun turns out to be uninterpretable only in this type of construction, the analysis becomes equivalent to a syncategorematic treatment of the *ina* construction. The fact that this construction is a kind of quirk can be shown by the contrast in (48): only the definite DP *mo dhochtúir* ‘my doctor’ can occur in this construction; the indefinite DP *dochtúir liomsa* ‘a doctor of mine’ is ruled out.

(48) a. Tá mé i mo dhochtúir.

be I in my L-doctor

I am a doctor.

b. \*Tá mé in dochtúir liomsa

be I in doctor with-me.EMPH

I am a doctor.

Also, the fact that the possessive does not get a meaning can be shown by sentence (49), where the argument of *dochtúir* ‘doctor’ is denoted by the prepositional phrase *ag mo dharthair*, and not by the possessive contained in the preposition *ina*.

(49) Tá sé ina dhochtúir ag mo dharthair

Be he in.his doctor at my L-brother

He is a doctor of my brother.

## 6. Conclusion

Irish DPs cannot be interpreted predicatively and therefore have a more constrained distribution than their English counterparts. Predicative readings become available only when DPs combine with overt material and, in two out of three cases, this material can be treated as overt versions of Partee's string-vacuous type-shifting operators. Other languages have DPs whose distribution is more restricted than in English: for instance, in Russian and French, additional elements (instrumental case for Russian (50a), and the preposition *comme* in French (50b)) are required to combine with DPs in order to yield predicative readings in some environments.

- (50) a. Čexov byl pisatel-em. (Peretsvaig 2007:1-2)  
 Chekhov was writer-INSTR  
 Chekhov was a writer.
- b. Marie le considère comme une référence en matière de licornes.  
 Mary him considers as a reference in matter of licorns  
 Mary considers him an authority on unicorns.

The results of this paper suggest that combining Partee's (1987) system with an overt/covert parameter constitutes a promising approach to the typology of DPs' interpretations.

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