Two types of definite description subjects

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ABSTRACT. This paper uses pronominalization in tag-questions to support a type-theoretic contrast between definite description subjects in predicational copular sentences (type ⟨e⟩) and specificational copular sentences (type ⟨e,t⟩). It further shows how the type is determined by the semantic composition of the subject with the rest of the clause.

1 Introduction

This paper uses pronominalization in tag-questions and question–answer pairs to support a type-theoretic contrast between the pre-copula nominals in (1) and (2).[1]

(1)   The lead actress in that movie is Ingrid Bergman.

(2)   The lead actress in that movie is Swedish.

Adapting the techniques and proposals of Partee (1986, 1987), I argue that the definite description in SPECIFICATIONAL sentences like (1), in which the post-copula expression specifies the identity of the subject, is interpreted as property-denoting (type $\langle e, t \rangle$).[2] In contrast, the subject of PREDICATIONAL sentences like (2), in which the post-copula expression predicates something of the subject, is individual-denoting (type $\langle e \rangle$). This is in effect a formalization of Higgins' (1979:212–220) claim that the interpretation of the subjects in these two constructions differs. In his terms, the subject of a predicative clause is 'referential', whereas the subject of a specificational sentence is not referential, but what he calls 'superscriptional'. This claim, refined in the present work, receives novel support from the contrast seen initially in (3) and (4).

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[2]For simplicity and compatibility with Partee's work, I use extensional types throughout.

(3)   The lead actress in that movie is Ingrid Bergman, isn't it?

(4)   The lead actress in that movie is Swedish, isn't {she/*it}?

(3) is a specificational sentence and the tag-question has the neuter pronoun
it. In contrast the predicational sentence in (4) allows only the feminine pro-
noun *she* in the tag. On the assumption, motivated below, that *she* can be
anaphoric only to individual-denoting expressions, this contrast follows from
the contrasting semantics of the subjects: in (3), the definite description is
interpreted as a property, in (4) as an individual. Both interpretations are
available in principle for any (occurrence of any) definite description, but
in most cases, including (3) and (4), the semantic composition of the defi-
nite description with the other elements in the clause filters out the other
reading(s), (see section 3).

The argument from pronominalization presented below brings together
Much recent work has sought to deny that this interpretive contrast ex-
ists. Heycock and Kroch (1999:373–374, 382–384), and Rothstein (1995:42,
2001:243–246), argue that a DP subject of a specificational clause is referential—
at least when the predicate complement is referential—thereby assimilating
specificational clauses to equative sentences like *Mary is Dr. Smith*. But
this leaves no natural way to account for the pronoun facts in (3)–(4) and
others of a similar nature discussed below.

The argument from pronominalization presented below brings together
two observations put forth in the literature. The first is that pronominal-
ization is sensitive to the semantic type of the antecedent of the pronoun
(see e.g. Kuno (1972:355–363) and Doron (1988:282–286) on English; Heg-
gie (1988:67–71) on French; Zamparelli (2000:17–18) on Italien, and Eng-
dahl (2001:132–133) on Swedish). The second is that the initial NP of at
least some specificational clauses appears to be non-referential (Williams
(1983:427); Partee (1986:362); Heggie (1988:71–78); Schlenker (2001:16–20;
25–34)). The argument from pronominalization in tag-questions presented
below is, as far as I know, new.[3]

In section 2, I develop the argument from pronominalization in more
detail, expanding the domain to include question–answer pairs, and in sec-
tion 3, I suggest a way of integrating the proposed DP interpretations in
a type-driven, compositional semantic interpretation of specificational and
predicational copular sentences. This semantic analysis is directly supported
by recent syntactic proposals (Adger and Ramchand (2001), den Dikken
(1998:179–185), Heycock (1994:182–185), Moro (1997:30–77)) that specifica-
tional sentences differ from predicational sentences only in which constituent
raises (from the small clause complement of the copula) to the matrix sub-

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[3]Higgins (1979:283) makes a possibly related observation about pronominalization of
the subject of 'identificational' copular sentences (*That is the mayor, isn't it?*) vs. 'iden-
tity' sentences (*That woman is the mayor, isn't {she/*it}?*). See also the brief discussion
of similar facts in Danish in Mikkelsen (2002:421), and the discussion of question anaphora
in French in Schlenker (2001:17–19).

ject position. In a predicational sentence it is the subject of the small clause that raises. In a specificational sentence it is the small clause predicate, which is necessarily semantically predicative (Rothstein 2001:254).

In section 4, I discuss an alternative interpretation of the pronoun facts, based on the analysis of specificational clauses proposed in Schlenker (2001).

2 Pronominalization as a test for semantic type

The central premise of my argument is that the form of the pronoun in a tag-question is determined by the subject of the tagged clause, in the sense that the pronoun must be an appropriate proform of the matrix subject, agreeing with it in number, gender, and person (Quirk et al. (1985:§11.8); see also Bolinger (1957:17–22, 116–122; 1975:279), Bowers (1976:237), Bresnan (1994:97), Jespersen (1924:198, 302, 323), and McCawley (1988:251)).[4]

Since the pronoun *she* is singular, feminine, and third person it can occur in a tag-question only when the matrix subject provides an antecedent that is a non-plural, female, and denotes neither the speaker nor the hearer:[5]

(5) a. {Margaret/the actress/she} got lost, didn't she?

b. *{They/we/you/the book/it/he} got lost, didn't she?

I further assume, as a fact about the world, that individuals, but not properties, propositions, or any higher-order entities, can be female. In English and many other languages, this is reflected in the range of possible antecedents for a feminine pronoun like *she*. The fact that only *she* is possible in the tag of a predicational clause like that in (6) is thus evidence that a definite description is individual-denoting when occurring as the subject of a predicational clause.

(6) The lead actress in that movie is Swedish, isn't {she/*it}?

The pronoun *it* can be anaphoric to an individual-denoting expression only if the individual denoted is singular and (treated as) non-human:

(7) a. {The book/the dog/it/your wallet} got lost, didn't it?

b. *{The books/you/the woman/your husband/Susan} got lost, didn't it?

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[4]This restriction can be stated formally using the analysis of number, gender, and person features as presuppositions on felicitous pronoun use in Heim and Kratzer (1998:244–245). See also the treatment of gender features on 'paycheck' pronouns in Jacobson (2000:136–137).

[5]I set aside examples where the antecedent is not biologically female, but treated as such by the grammar, as is sometimes the case for countries (Quirk et al. 1985:§5.111) and ships (Doron 1988:283) in English. See Pollard and Sag (1994:§2.3) for discussion.

I thus take the occurrence of *it* in the tag in (8) to indicate that the definite description subject of a specificational clause is not individual-denoting.[6] In particular, I will argue that it is property-denoting. (Since the head noun is gender-specific, the presence of *it* cannot be explained by appeal to *it* being a default form used in the absence of sufficient information about the gender of the antecedent.)

(8)   The lead actress in that movie is Ingrid Bergman, isn't it?

If the subject of (8) is property-denoting, the fact that the tag is not formed with *she* is expected (given the assumption stated above (6)). The rest of this section is devoted to showing that *it* is the expected anaphoric pronoun for a property-denoting expression in English in this particular environment.

If *it* can be anaphoric to a property-denoting expression, as argued for (8), we might expect it to be able to function as a pro-form for adjective phrases since these are traditionally assumed to denote properties. While this is true of the third person neuter pronoun in many languages—including Danish *det*, German *es* (Ross 1969:356), and French *le* (in its use as a predicate clitic (Heggie 1988:67–71))—it is not generally true of English *it*, as pointed out by Ross (1969:357):

(9)   *They said that Sheila was beautiful, and she is it.

Instead the demonstrative *that* is used, as in (10) (from Partee (1986:360), see also Ross (1969:357, ex. 16)).

(10)   They said that Sheila was beautiful, and she is that.

However, *that* is not possible in the tag, as (11) shows.

(11)   *The lead actress in that movie is Ingrid Bergman, isn't that?

This holds true even when the matrix subject is *that* itself:

(12)   That is Ingrid Bergman, isn't {it/*that}?

My interpretation of these facts is that *it* and *that* can both be used as proforms for property-denoting expressions in English, and the differences in distribution is due to prosodic factors. As noted by Quirk et al. (1985:§6.16), *it* is almost never stressed (discounting metalinguistic uses), while *that* is generally stressed. In a tag-question the nuclear accent falls on the auxiliary, while the pronoun is unstressed (Quirk et al. 1985:§11.8). This is why *it*, but not *that* can occur in tags (compare (8) and (11)). In contrast, *that* is stressable in (10). In fact this seems to be the preferred prosodic realization (with nuclear stress on *that*). The general preference for the nuclear stress to fall on the rightmost element within the intonational phrase disfavors (9), since *it* cannot carry nuclear stress. The prosodic difficulties with (9)

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[6]I return to the possibility of using *she* in the tag in (8) in the conclusion.

4

are only compounded by the fact, noted and discussed most extensively by Postal (1998:§2.3), that English predicative positions cannot be occupied by weak definite pronouns; this 'anti-pronominal' characteristic is further illustrated in (13).

(13)   a. *They said Sheila would remain lonely, and she did remain it.

    b. *A bagel makes a great snack and a pretzel makes it too.

If the distribution of predicative *it* and *that* is indeed restricted by these prosodic and syntactic factors, we expect either form to be able to occur when these restrictions are not in force (i.e. outside anti-pronominal and prosodically restricted positions). This expectation is borne out by (14), where either *it* or *that* can occur in the subject position of the answer.

(14)   Is the lead actress in that movie Ingrid Bergman?

    a. No, it's Liv Ullmann.

    b. No, that's Liv Ullmann.

I take the facts in (8) – (14) to show that *it* can be anaphoric to a property-denoting expression, as long as certain prosodic and syntactic conditions are met: the position must be prosodically non-prominent and allow weak definite pronouns, as is the case in (8) and (14a).

The exchange in (14), together with that in (15), also shows that the original pronominalization contrast between definite description subjects of specificational vs. predicational sentences extends from tag-questions to question–answer pairs:[7]

(15)   Is the lead actress in that movie Norwegian?

    a. No, she is Swedish.

    b. *No, {it/that} is Swedish.

To summarize: I have argued that the distribution of pronouns in tag-questions to copular sentences reveals a difference in the interpretation of the subject of the tagged clause: the subject of a predicational clause denotes an individual, while the subject of a specificational clause denotes a property. In the next section I show how this meaning difference is brought about through the semantic composition of the two types of clauses.

3   A formal analysis

In my formalization I rely on the system of noun phrase interpretation given in Partee (1987). Partee's system is presented in an extensional formal language and I too will present my analysis in extensional terms, leaving

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[7]Kuno (1972:356) makes similar observations for answers to constituent questions.

the issues that arise with recasting the analysis in an intensional language for future research.

For simplicity I illustrate the formal analysis using *the actress*, instead of *the lead actress in that movie*, and I give the denotations of the noun phrase directly, without explicating its internal composition. A compositional analysis, yielding the NP meanings assumed here, is provided in Partee (1987:123–125). The predicative interpretation of *the actress* is the singleton set containing the (contextually) unique actress if there is one, and the empty set otherwise:

(16) $[\![\text{the actress}]\!] = \lambda x[\text{actress}'(x) \wedge \forall y[\text{actress}'(y) \rightarrow x = y]]$
$\equiv \lambda x[\forall y[\text{actress}'(x) \leftrightarrow x = y]]$

From this predicative interpretation the referential interpretation is derived by application of Partee's 'iota' type-shifter, which maps a singleton set onto its member: $\mathcal{P} \rightarrow \iota x[\mathcal{P}(x)]$, where $\mathcal{P}$ is a predicate (Partee 1987:121–122). Applying 'iota' to the predicative interpretation in (16) yields the referential interpretation in (17).

(17) $[\![\text{the actress}]\!] = \iota x[\text{actress}'(x)]$

Here *the actress* denotes the (contextually) unique actress. The existence and uniqueness requirements carry over from the predicative interpretation: if there is no (contextually) unique actress, the type-shifting operation is undefined (Partee 1987:124).
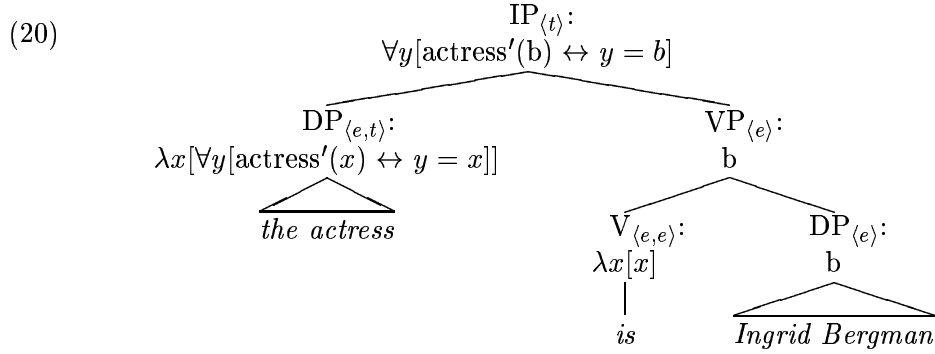
I further assume that proper names can denote individuals, so that $[\![\text{Ingrid Bergman}]\!]$, the interpretation of *Ingrid Bergman*, is given by the constant b, and that intersective adjectives denote properties; $[\![\text{Swedish}]\!] = \lambda x[\text{swedish}'(x)]$. Finally, I take the copula to denote the generalized identity function in (18).

(18) $[\![\text{be}]\!] = \lambda \mathcal{X}[\mathcal{X}]$, where $\mathcal{X}$ ranges over variables of all types in the language

This denotation is in the spirit of the 'zero-*be*' approach advocated in Partee (2000:189–190), according to which differences in the semantics of different copular sentences are due to differences in the semantics of the arguments of the copula, and not due to a lexical ambiguity in the copula itself. In terms of type-theory, *be* is polymorphic in the sense of Partee (1986:364): it is of type $\langle X, X \rangle$, where X ranges over all types. This is a direct reflection of the extreme syntactic and semantic versatility of the copula illustrated in Partee (1986:355; 2000:189).

With this much in place we can give interpretations for the specificational and predicational copular sentences discussed above. Suppressing irrelevant syntactic structure and lexical material, the interpretation of (19) (= (1)) is as in (20).
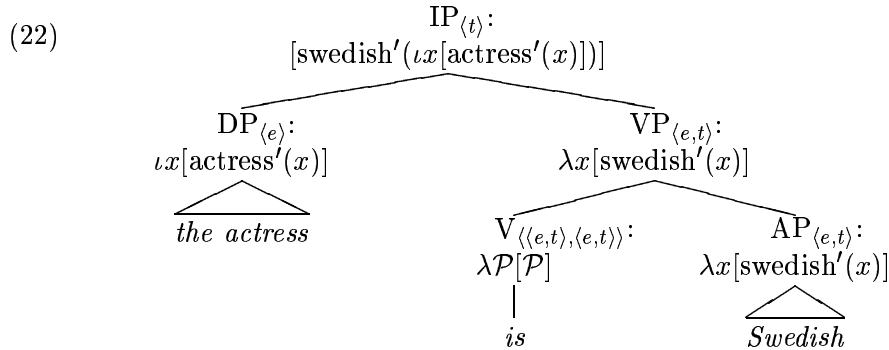
(19) The lead actress in that movie is Ingrid Bergman.

(20)

$$\text{IP}_{\langle t\rangle}:$$
$$\forall y[\text{actress}'(\text{b}) \leftrightarrow y = b]$$

$$\text{DP}_{\langle e,t\rangle}:$$
$$\lambda x[\forall y[\text{actress}'(x) \leftrightarrow y = x]]$$
the actress

$$\text{VP}_{\langle e\rangle}:$$
$$\text{b}$$

$$\text{V}_{\langle e,e\rangle}:$$
$$\lambda x[x]$$
|
is

$$\text{DP}_{\langle e\rangle}:$$
$$\text{b}$$
Ingrid Bergman

The $\langle e\rangle$-type denotation of the VP accords with Higgins' claim that specificational sentences do not involve predication in the standard sense (where the VP denotes a property predicated of the individual denoted by the subject). Rather the subject predicates a property of the predicate complement, taking seriously the predicate raising analysis of specificational sentences advocated on syntactic grounds by Moro (1997), and discussed briefly at the end of section 1.

The translation of the predicational sentence in (21) (= (2)) is given in (22) (again suppressing irrelevant syntactic structure and lexical material).

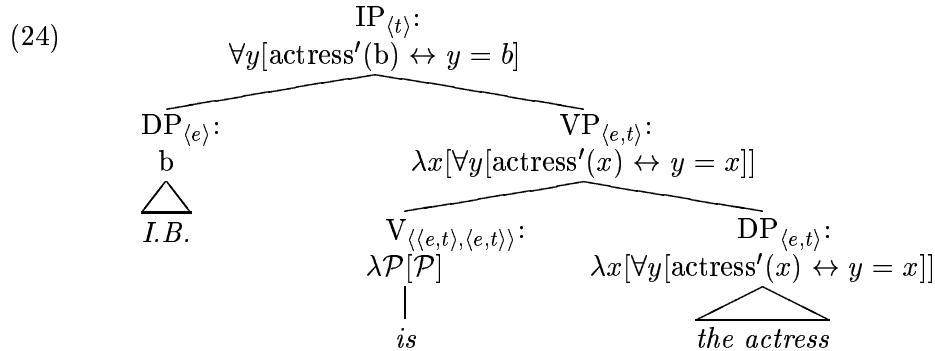(21)   The lead actress in that movie is Swedish.

(22)

$$\text{IP}_{\langle t\rangle}:$$
$$[\text{swedish}'(\iota x[\text{actress}'(x)])]$$

$$\text{DP}_{\langle e\rangle}:$$
$$\iota x[\text{actress}'(x)]$$
the actress

$$\text{VP}_{\langle e,t\rangle}:$$
$$\lambda x[\text{swedish}'(x)]$$

$$\text{V}_{\langle\langle e,t\rangle,\langle e,t\rangle\rangle}:$$
$$\lambda \mathcal{P}[\mathcal{P}]$$
|
is

$$\text{AP}_{\langle e,t\rangle}:$$
$$\lambda x[\text{swedish}'(x)]$$
Swedish

In (22) the VP has a standard $\langle e, t\rangle$-type denotation, which is passed up from the AP by the semantically vacuous copula. To combine with the VP the definite description subject must shift, via 'iota', to an $\langle e\rangle$-type denotation (see (17)). If the definite description does not shift, the composition either halts when failing to combine the subject and the VP by function application, or these are combined by predicate modification yielding an $\langle e, t\rangle$-type denotation for the root node, which I assume is not permitted (see e.g. Bittner's (1999) 'Type Filter', which "requires a translation of the propositional type t for the root node" (Bittner 1999:13)).

The ungrammaticality of *it* in the tag in (23) shows that a proper name in subject position must be individual-denoting.

(23)   Ingrid Bergman is the lead actress in that movie, isn't {she/*it}?

7

We therefore analyze (23) as a predicational structure, where the definite description denotes a property:

(24)

$$\text{IP}_{\langle t\rangle}:$$
$$\forall y[\text{actress}'(\text{b}) \leftrightarrow y = b]$$

$$\text{DP}_{\langle e\rangle}: \qquad\qquad \text{VP}_{\langle e,t\rangle}:$$
$$\text{b} \qquad\qquad\qquad \lambda x[\forall y[\text{actress}'(x) \leftrightarrow y = x]]$$

I.B.

$$\text{V}_{\langle\langle e,t\rangle,\langle e,t\rangle\rangle}: \qquad\qquad \text{DP}_{\langle e,t\rangle}:$$
$$\lambda \mathcal{P}[\mathcal{P}] \qquad\qquad \lambda x[\forall y[\text{actress}'(x) \leftrightarrow y = x]]$$

is   *the actress*

Notice that the translation of the root node in (24) is identical to the translation of the root node in (20). This implies that any perceived meaning difference between (19) and the matrix clause of (23) is not truth functional. Rather, the difference between the two seems to reside in their presuppositional content (Graff 2001:10–17), their topic–focus structure (Higgins (1979:234–236); Partee (2000:199-200)), and the requirements on the relative discourse-newness of the two noun phrases (Birner 1996:42–45, 90).

4 An alternative interpretation

Schlenker (2001:39ff) proposes that the subject of a specificational clause like (25) is interpreted as a CONCEALED QUESTION in the sense of Baker (1968) (see also Grimshaw (1979) and Heim (1979)).

(25) His worry is John.

Under Schlenker's analysis (25) can be paraphrased roughly as: "the answer to the question 'which x is such that his worry is x' is 'his worry is John'" (Schlenker 2001:48, ex. (79)). In terms of semantic types, Schlenker argues that both the subject and the predicate complement are propositional (type $\langle s,t\rangle$). That the subject DP is propositional follows from the semantics for questions proposed in Groenendijk and Stokhof (1997), according to which a question denotes its unique exhaustive true answer (Schlenker 2001:31–38). Schlenker's proposal is broadly in harmony with the ideas developed here (both maintain that definite descriptions in subject position can have denotations of types other than $\langle e\rangle$), but the question arises of whether it might not provide a viable alternative to the specific proposal developed above. In particular, a propositional analysis of definite description subjects in specificational clauses would also account for the fact the they pronominalize as *it* rather than *she*, given that *it* can be anaphoric to propositional expressions (Quirk et al. 1985:§6.17). It thus needs to be investigated whether Schlenker's concealed question analysis of possessive DPs like *his worry* can

8

reasonably be extended to definite descriptions like *the lead actress in that movie* when they occur as subjects of specificational clauses.

At this point I do not have any conclusive arguments against a concealed question analysis, but there are several issues that need to be resolved to make such an analysis viable. First, it is not clear if there is a syntactic correlate of having a concealed question reading. In their analysis of specificational pseudo-clefts, den Dikken et al. (2000) propose that concealed questions are derived from CP structures by deletion. This seems less plausible for the non-clefted structures under consideration here.

The second question is how concealed question readings are licensed, in particular what prevents such a reading of the subject of a predicational clause like (26).

(26)   The lead actress in that movie is Swedish.

That is, why can (26) not be interpreted—along the lines of (25)—as: "the answer to the question 'what nationality is the lead actress in that movie' is 'the lead actress in that movie is Swedish'"? It is crucial that this reading be ruled out, in so far as it is the concealed question reading that allows the subject to pronominalize as *it*. Otherwise, we predict (27) to be possible, contrary to fact:

(27)   *The lead actress in that movie is Swedish, isn't it?

Under my analysis, (27) is impossible because the predicate complement (*Swedish*) is type $\langle e, t \rangle$, which forces the definite description into its $\langle e \rangle$-type denotation (as discussed below (22)). While the details still need to be worked out, it should be clear that my proposal falls within the bounds of the well-studied and formally well-understood system of Partee (1987), whereas the concealed question analysis requires a non-trivial extension of Partee's system. On the other hand, Schlenker's (2001) analysis offers a clear account of CONNECTIVITY effects of the sort documented and discussed by Higgins (1979:105–115), while further research is needed to be able to account for these under the analysis proposed here.

5   Conclusion

The heart of the present proposal is that definite descriptions in subject position need not be individual-denoting. Empirical support for this proposal comes from the pronominalization facts examined above, which I argue show that definite description subjects in specificational sentences denote properties. Further support for the general thesis comes from the ambiguity of the example in (28), first brought to my attention by Bill Ladusaw (p.c.).

(28)   The winner of the Oscar for best actress is presently unknown.

(28) is ambiguous between a reading where the identity of the individual who won the Oscar for best actress is unknown at the time of utterance, and a reading where the person who won it is herself unknown (in the sense of not very famous) at the time of utterance. This ambiguity of (28) is resolved by the continuations in (29):

(29)   a. It could be Ingrid Bergman.

        b. She has only been in one other movie.

(29b) picks out the individual-denoting reading of the definite description in (28), while (29a) picks out the non-individual-denoting reading. The difference is reflected in the pronoun: *she* vs. *it*. An obvious question for further research is whether the non-individual-denoting reading of the definite description in (28) can be identified with the property-denotation suggested for definite description subjects in specificational sentences above.

Another important issue is that some speakers find (30) acceptable, in addition to (31).

(30)   The lead actress in that movie is Ingrid Bergman, isn't she?

(31)   The lead actress in that movie is Ingrid Bergman, isn't it?

On the analysis presented here, the possibility of using *she* in the tag indicates that the subject of the tagged clause allows a referential interpretation, in addition to the predicative interpretation, signalled by the use of *it* in (31). A natural interpretation of these facts, is that *The lead actress in that movie is Ingrid Bergman* is ambiguous between an equative reading (forced by *she*) and a specificational reading (forced by *it*). Evidence for this comes from the fact that an unambiguously equative clause like (32) allows only *she* in the tag.

(32)   Mary is Dr. Anderson, isn't {she/*it}?

Equatives are often marked, in the sense that they require a special context to be uttered felicitously, one where the (discourse) referents of the two NPs are known to the hearer, without her knowing that they are the same individual (cf. Zamparelli (2000:225ff)). The markedness of equatives might help explain why not all speakers accept (30): in the absence of a special context of the sort sketched above, the equative reading is not (readily) available. The pragmatic conditions on specificational and equative clauses deserve further study.

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