# The logic of Person markedness:
# Evidence from pronominal competition[1]

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**Abstract**
In some languages, such as Hebrew and German, a D-PRONOUN (a pronominal demonstrative form) may refer to a human. When it does, the use of the d-pronoun may be associated with a pejorative effect, implying a negative evaluation of the denoted individual (henceforth N(EGATIVE)-EFFECT). The N-effect is triggered, however, only under certain conditions. For example, when the d-pronoun is modified, no N-effect arises. The paper examines the syntactic and pragmatic conditions under which this meaning emerges, and develops an account which integrates pronominal markedness and competition into the fold of conversational implicatures. The study addresses two questions: (I) What is the distribution of the N-effect? (II) How is it linguistically encoded? Regarding (I), it is shown that the N-effect is triggered only when a personal pronoun could also have been used. This suggests that everything else being equal, a personal pronoun is preferred over a d-pronoun; it also suggests that the N-effect is not intrinsically, or lexically, encoded. Regarding (II), the N-effect must derive from the non-use of a personal pronoun, and in this sense, it is related to markedness, and to systems which derive conversational implicatures. We argue that the use of a d-pronoun when a personal pronoun could also have been used gives rise to an implicature that the d-pronoun is associated with [-person], and substantiate a theory of PERSON as a contentful category which marks discourse participation.

**Keywords:** d-pronouns, person, negative appraisal, implicature, expressive language

**1.** INTRODUCTION

In some languages, such as Hebrew 1 and German 2, demonstratives and determiners, respectively, can be used like pronouns and refer to humans. We refer to such forms as d-pronouns. In 1-2, the d-pronoun subjects may refer to human beings or to objects.[1]

    (1) zot(i) / ha-hi    gvoha.
       ZFS / the-HFS  tall
      'This one / that one is tall.'

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(2) Die　ist　　gross.
　　DFS　is　　tall
　　'This/that one is tall.

In some contexts, such as 1-2, the use of the d-pronoun triggers NEGATIVE APPRAISAL.[2] We call this the N-EFFECT. The N-effect is purely evaluative and lacks descriptive content; use of the d-pronoun implies a dismissive attitude on the part of the speaker towards the individual denoted by the pronoun. This is seen most clearly when the context mandates closeness and caring, as in 3-4, where Speaker A refers to Speaker B's new girlfriend, and B is sharing his feelings for her. Use of a d-pronoun in these contexts is jarring and odd, whereas the use of a personal pronoun would be unremarkable.

(3)　A:　　rai'ti etmol　　et　ha-xavera　　ha-xadaSa　　Selxa.
　　　　　saw.1　yesterday ACC　the-friend.FS　the-new.FS　　your
　　　　　'I saw your new girlfriend yesterday.'
　　B:　#zot　ma　　　ze　　xamuda.
　　　　ZFS　what　　it　　cute.F
　　　　'That one is so cute.'
　　B:　#ani　ma　　ze　　me'ohav　　be-zot
　　　　I　　what　it　　in.love　　in-ZFS
　　　　'I'm so in love with that one.'

(4)　A:　　Ich　habe　gestern　deine neue　Freund-in　　gesehen.
　　　　　I　　have　yesterday your　new　friend-F　　seen
　　　　　'I saw your new girl-friend yesterday.'
　　B:　#Die　ist　　total　nett.
　　　　DFS　is　　totally　nice
　　　　'That one is totally nice.'
　　B:　#Ich　hab　mich　in　　die　verliebt.
　　　　I　　have　REFL　in　　DFS　love
　　　　'I have fallen in love with her.'

Interestingly, the N-effect is only selectively triggered. In 5 and 6, for example, the d-pronoun is modified and the N-effect is not triggered. Although here too the d-pronoun refers to B's girlfriend, use of the d-pronoun here is unremarkable.

(5)　B: tir'e, hine ha-xavera ha-xadaSa Seli!
　　　　look here  the-friend.FS the-new.FS mine
　　　　'Look, there's my new girlfriend!'
　　A: eyze me-hen?
　　　　which of-them
　　　　'Which one of them? '
　　B: ha-xavera　　Seli hi zot　im　　ha-nemaSim
　　　　The-friend.FS mine is ZFS　with　the-freckles
　　　　'My girlfriend is the one with the freckles.'

(6)    B: Schau, dort ist meine neue Freund-in.
          look, there is my.FS new.FS friend-F
          'Look, there's my new girlfriend!'
     A: Welche ist sie denn?
         which.F is she PRT
         'Which one of them?'
    B: Die mit den Sommersprossen.
       D.FS with the freckles
       'the one with the freckles.'

This raises two questions, which we address in this paper: (I) What is the distribution of the N-effect? and (II) How is it linguistically encoded?

Regarding its distribution, we show that the N-effect is restricted to i) human referents and ii) contexts in which the d-pronoun could be replaced by a PERSONAL PRONOUN. Whereas the two forms freely alternate in 1-2, a personal pronoun is impossible with the addition of a modifier, and no N-effect is triggered. We discuss these contexts in detail in section 2. We argue that d-pronouns and personal pronouns compete, and that a personal pronoun is preferred whenever possible (Patel-Grosz and Grosz 2017); the choice of a d-pronoun triggers the N-effect. We argue, furthermore, that the N-effect is an inference, a type of scalar implicature which arises when the personal pronoun alternative could have been used, but wasn't. Regarding its encoding, we will show that the N-effect encodes just that: 'not personal pronoun', and in slightly more formal terms, the absence of PERSON. We take PERSON to be contentful and to encode the discourse role of subject, where bearers of PERSON are potential discourse subjects: entities which can communicate and actively participate in discourse. Choice of a d-pronoun over a personal pronoun implicates that the speaker does not consider the referent to be a valid discourse subject, someone whose opinions are worth considering, hence the air of dismissiveness. This is why the N-effect is restricted to humans; non-humans are never potential discourse subjects to begin with.

The ability of a pronominal element to trigger a scalar implicature is surprising, and has not yet been studied in depth to the best of our knowledge; it has also rarely been attested (see fn. 2; the only other related example that we are aware of is the negative perception of McCain's use of the full DP *that one* to refer to Barack Obama in a presidential debate (Acton 2014)). It is surprising because implicatures convey content, typically content that is associated with a preferred alternative which nevertheless was not chosen, but pronouns lack descriptive content. The use of *some*, for example, typically triggers the scalar implicature *some but not all*, due to a preference for *all*, which would have been used if it could have been. It is not obvious, though, that the landscape of pronouns is similarly structured by relations of asymmetrical entailment which could produce scalar inferences. While some pronouns may appear to stand in scalar relationships to each other, this type of relationship is purely syntactic: it has been claimed that some pronouns are associated with larger structures which contain the structure associated with other pronouns (Wiltschko 1998, Cardinaletti and Starke 1999, Déchaine and Wiltschko 2002, Patel-Grosz and Grosz 2017; but see Béjar 2003 for a semantic conception of pronominal features). Cardinaletti and Starke 1999, for example, argue for an Economy principle MINIMIZE STRUCTURE, which states a preference among pronouns for those with less structure whenever possible. However, even if it gives rise to scalar relations, structure alone cannot generate implicatures. For that, some notion of content is needed.

Previous work on definite and demonstrative determiners such as *the*, *this*, and *that* identified a number of inferences and asymmetries among determiners, such as a distancing inference associated with the use of plural definite descriptions like *the Americans*, due to non-use of *we Americans* (Acton 2014, 2019), or a DISTAL inference for *that* triggered by the non-use of *this*, which encodes PROXIMATE (Wolter 2006). In line with previous work on inferences in the domain of determiners, we argue that implicatures are triggered within the pronominal domain as well, and that these are scalar implicatures, derived via asymmetrical entailment relations among the set of pronominal alternatives. The grammatical nature of the alternation between pronominal elements makes a particularly strong case for inferential meaning that is triggered by preferences and competition. As we show, differences in the distribution of personal pronouns and d-pronouns result in grammatical gaps in the availability of the personal pronoun, and under these circumstances, the N-effect does not arise. In alternations based exclusively on meaning, on the other hand, this sharp empirical contour may remain elusive. Another central contribution of the study of the N-effect is the relation that it reveals between personal pronouns and definite expressions which up until now has been completely obscured. As we show, the denotation of personal pronouns asymmetrically entails the denotation of d-pronouns. This conclusion bears, more broadly, on the semantic structure of the landscape of nominal expressions, in which it is commonly assumed that demonstratives and definites are *more* informative or marked than personal pronouns (Prince 1981, Gundel, Hedberg and Zacharsky 1989, 1993, Ariel 1999, and more recently Ahn 2019, among others). If we are correct that personal pronouns asymmetrically entail d-pronouns, the influential view that personal pronouns are the pronominal instantiation of a definite DP cannot be quite correct in its most simple formulation (Postal 1969, Elbourne 2013).

The N-effect is a special kind of implicature, rooted in pronominal features rather than descriptive content, and determined by the presence of a pronominal alternative. This combination of properties places pronominal features at the center of our analysis, and highlights three related issues at the intersection of markedness and interpretation.

First, does the N-effect represent the presence of some feature, in other words, a MARKED feature, or the absence of a feature, an UNMARKED feature? If the latter, what is the status of the unmarked feature: is it represented as a negative value of a present feature, or is it inferred? The logic of implicatures dictates that the N-effect should be derived from the absence of a feature, that is, its negation (e.g. *some, **not** all*). This bears directly on the nature of grammatical features, and whether they are grammatically encoded as binary or privative. We argue that the N-effect expresses the absence of a feature in d-pronouns, specifically PERSON; along with other work, we argue that PERSON is associated with personal pronouns and is semantically contentful (Béjar 2003, 2008; Sauerland 2008a; Harbour 2016; Pancheva and Zubizaretta 2018); and that this negative value is inferred, not represented as such.

Second, what is the basis for preferences within the class of pronouns, of the kind that can generate implicatures? Classic Gricean theory included at least two kinds of preference scales, corresponding to distinct maxims: an informativity scale, based on asymmetrical entailment, associated with the first Quantity Maxim (Q1: *say as much as you can*), and a formal scale, based on complexity or length, associated with the Manner Maxim. It is hard to know, a priori, whether a personal pronoun and a d-pronoun are to be treated as having essentially the same kind of form, and contrasting in informativity, or as having essentially the same meaning and contrasting in form. However, we may not have to decide between these options. There have been numerous cracks in the classic Gricean picture, among them the realization that both types of preference scales - based on informativity-entailment and based on length-complexity - operate in tandem, to

limit the set of relevant alternatives (Katzir 2007, Katzir and Fox 2011, Marty 2017, Acton 2019, Ahn 2019), so it is no longer a matter of choosing between types of scales. Since formal scales related to length-complexity, cannot, on their own, generate contentful implicatures, the empirical question which we address is whether pronouns may be structured along an entailment dimension, such that some pronoun(s) may asymmetrically entail another, on a par with the relationship between *all* and *some*. We argue that personal pronouns asymmetrically entail d-pronouns, and motivate a scale for comparison based on pronominal denotations: the denotation of the personal pronoun is included in the denotation of the d-pronoun, as in Figure 1 below. The N-effect arises exactly when the denotation of the d-pronoun is identical to the denotation of the personal pronoun; in these graphic terms, when the denotation of the d-pronoun falls within the inner circle. This will happen when a unique salient referent is established, and the d-pronoun is not used to discriminate.
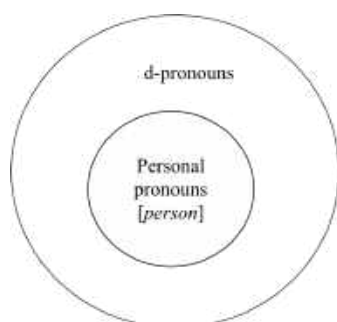


FIGURE 1. Personal pronouns vs. d-pronouns

Since the personal pronoun denotes the subset, it is the more informative expression of the two. Following Katzir 2007, Katzir and Fox 2011, Marty 2017, Acton 2019, Ahn 2019, we assume that informativity is weighed against complexity, such that expressions are better, hence preferred, if (i) they are more informative, without being more complex, or (ii) if they are shorter, or simpler, without compromising informativity. Since the personal pronoun is more informative, without being more complex than the d-pronoun, it is the preferred form when it is usable. This does not preclude situations in which the d-pronoun is more informative, such as when it used to discriminate. We argue below that personal pronouns cannot be used in this way. Therefore, under these circumstances, informativity would favor the d-pronoun. As expected, an N-effect is not triggered.

Third, since the content of the implicature refers to a grammatical feature, PERSON, and since such grammatical features have been claimed to be presupposed, rather than asserted (Sauerland 2008a, and more recently Charnavel 2019, contra Sudo 2013), it is possible that the implicature is derived from a presupposition. We suggest that it may be, and that it would constitute an anti-presupposition. We show that it patterns, at least to some extent, with other implicated presuppositions (Percus, 2006, Sauerland, 2008b).

The data reported here stem from the authors' introspection as well as consultation with other native speakers. Despite the apparent subtlety of the N-effect, we have found judgments to be surprisingly consistent. For the German data, it is important that our example sentences be pronounced in a variety of German which can be used in colloquial speech. This is because the use of d-pronouns is sometimes considered to be restricted to spoken language and arguably Standard German is not natively spoken by anyone. For example, Weiss (1998, 2004) gives extensive arguments for the preference, in linguistic investigation, for data from a spoken regional variant over written data (see also Auer 2004).

The paper is organized as follows. In Section 2 we examine the distribution of the N-effect in more detail, including environments defined syntactically, and in terms of contexts of use, where referential distinctions play a role. We spell out our proposal in more detail in Section 3 and turn to motivate it in Sections 4 and 5. In Section 4 we argue that the N-effect is rooted in the absence of a PERSON specification, and in Section 5 we argue against a calculation based exclusively on length-complexity, and we derive the N-effect as an implicated presupposition. Section 6 concludes.

## 2. THE DISTRIBUTION OF THE N-EFFECT

In this section, we show that the N-effect arises only when the referent is human (2.1) and a d-pronoun is used when a personal pronoun could also have been used (2.2).

### 2.1. THE RESTRICTION TO HUMANNESS

The first restriction is reference to humans. The N-effect arises only if the d-pronoun refers to a human individual (and isn't used deictically; see more below). For inanimate referents, no N-effect ever arises.

(7)   a. zot       gvoha.         b. D-ie    ist   gross.
         ZFS      tall               DFS     is    tall
         'This one is tall.'        'This one/ that one is tall.'
      Said of a person: there is an N-effect; said of a non-human: no N-effect

The restriction to human referents may suggest a characterization of the N-effect in terms of DEHUMANIZATION, similar to the use of a neuter pronoun (German *es* or English *it*), which typically refers to inanimate individuals. The N-effect appears to be subtler, however, than what an analysis in terms of dehumanization or animacy would lead one to expect. Dehumanization via the use of a neuter pronoun creates a much stronger effect. We argue below that this kind of underspecified negativity is to be thought of in terms of the notion of DISCOURSE SUBJECT and the structure of discourse roles.

### 2.2. COMPETITION WITH PERSONAL PRONOUNS

The d-pronouns in 1 and 2 can be replaced with a personal pronoun as shown in 8-9.

(8)       zot(i) / hi      gvoha.
          ZFS /   she     tall
          'This one / she is tall.'

(9)       Die / sie      ist      gross.
          DFS / she      is       tall
          'This one / she is tall.

In this subsection, we establish the significance of this alternation: the N-effect arises only in contexts in which the d-pronoun can be felicitously replaced with a personal pronoun. In other words, it is restricted to contexts of COMPETITION. Consider again the examples in 5 and 6, repeated

below as 10 and 11, which involve modification of the d-pronoun by a prepositional phrase. In this configuration the personal pronoun is ill-formed and the N-effect does not arise.

(10)     [DP zot / *hi     [PP im            ha-nemaSim]] gvoha
           ZFS/ *she       with          the-freckles    tall
         'The one with the freckles is tall.'

(11)     [DP Die /*sie     [PP mit   den   Sommersprossen]]     ist     gross
           DFS /*she         with the   freckles                is      tall
         'The one with the freckles is tall.'

Similarly, if the d-pronoun is modified by a relative clause 12-13 a personal pronoun cannot be used. No N-effect arises.

(12)     [DP zot / *hi     [CP Se-yac'a        im      Dani]]        gvoha
         [DP ZFS/ *she     [CP that-went.out   with   Dani]]         tall
           'The one that went out with Dani is tall.'

(13)     [DP Die/*sie      [CP die   mit der Dani befreundet ist ]] ist     gross
           DFS/*she       [CP DFS   with the Dani friended    is    is   tall
         'The one who is friends with Dani is tall.'

There are additional contexts where d-pronouns are the only choice, and importantly, these contexts vary across Hebrew and German. This supports our generalization, which refers to an alternation, not to specific configurations: an N-effect does not arise where a personal pronoun could not be used.

Consider first German. German d-pronouns are formally identical to relative pronouns, and personal pronouns are distinct. Therefore, in this environment too, this form does not compete with a personal pronoun. We thus predict that the N-effect will not be triggered, and it isn't.

(14)     Die Frau,    [{**die / *sie**}   gross ist ] ist   ins      Zimmer   gekommen.
         the woman    DFS / *she tall    is    is   in.the   room      come
         'The woman who is tall came into the room.'

The same generalization holds in Hebrew, though the contexts vary. D-pronouns do not compete with personal pronouns in presentational contexts, in clefts, and as reciprocals, and the N-effect does not arise (Yitzhaki, 2015).[3] Consider first presentational contexts. The use of a demonstrative pronoun in this context is special, as seen for example, in English, where *this / that* may seem to correspond to a human (see Moltmann 2013 for analysis in terms of intensional objects). In this context, personal pronouns are ill-formed, and the N-effect does not arise.

(15)     a.     **{zot / *hi}**     Dina.
                  ZFS / *she     Dina
                'This / That / It is Dina.'
         b.     **{ze /*hu}**  Dani.
                ZMS / *he     Dani
                'This / That / It is Dani.'

c.    {**zot / \*hi**}   [iSa       yafa]$_1$
       ZFS / \*she   woman  beautiful
       'This / that / is a beautiful woman.'

The same holds for clefts: d-pronouns do not compete with personal pronouns, and the N-effect does not arise.

(16)    a.    {**ze / \*hu}** Aviv Se-ohev    lir'ot      hisardut.
             ZMS/ \*he   Aviv that-likes   to-watch   survivor
             'It's Aviv that likes to watch 'Survivor'.'
    b.    {**zot / \*hi** } aviva Se-ohevet lir'ot      hisardut.
             ZFS / she Aviva that-likes   to-watch  survivor
             'It's Aviva that likes to watch 'Survivor'.'

Finally, Hebrew reciprocals may be formed with d-pronouns, but they do not trigger an N-effect as in 17a. This seems to be part of the same generalization: the N-effect arises only if the d-pronoun competes with the personal pronoun, and Hebrew reciprocals cannot be composed from personal pronouns, as in 17b.

(17)    a.    dani$_1$ ve-dina$_2$ histaklu  **ze**$_1$   al  **zot**$_2.$
             Dani$_1$ and-Dina$_2$ looked  ZMS  at  ZFS
             'Dani and Dina looked at each other / one another.'
    b.    \*dani$_1$ ve-dina$_2$   histaklu  **hu**$_1$ al **hi**$_2.$
             Dani$_1$ and-Dina$_2$ looked   he$_1$ at she$_2$
    c.    Dani$_1$ ve-dina$_2$   histaklu  **exad**$_1$   al  **ha-Sniya**$_2.$
             dani$_1$ and-dina$_2$    looked    one-MS at  the-second-FS
             'Dani and Dina looked at one another.'

So far, the conditions that define the alternation have been syntactic, and refer to whether a personal pronoun is available in a given position alongside the d-pronoun. Another set of conditions refer to referential possibilities and contexts of use, and specifically, to whether or not the d-pronoun is used to discriminate among multiple potential referents, in the way that demonstratives are used in contexts in which there is more than one qualifying referent (Roberts 2002, Wolter 2006, Ahn 2019, among others). D-pronouns in the two languages behave similarly in this respect. First, a d-pronoun may be used to discriminate, but it need not. Second, the N-effect is triggered only if the d-pronoun is *not* used to discriminate, and this occurs when a salient unique individual is already established in the context. In this case, d-pronouns are used just like personal pronouns, and indeed, a personal pronoun could also be used. The N-effect is triggered, as in the following contexts.

(18) Context: A group of fans are watching the Eurovision Song Contest.
    Everyone's favorite (Chonchita Wurst) appears on screen.
        a.    zot od   tafti'a    et    kulam.
             ZFS yet   surprise  ACC everyone
             'This one will surprise everyone yet.'
        b.    Die    wird   jetzt   alle    überraschen.
             DFS    will    now    all     surprise
             'This one will surprise everyone.'

(19)     a.     dani   xoSev   se-zot     od  tenaceax.
               Dani thinks   that-ZFS yet  win
               'Dani thinks that this one might yet win.'
         b.     Der   Dani  glaubt dass die       gewinnen  wird.
               The   Dany  thinks  that  DFS       win        will
               'Dani thinks that this one will win.'

When the use of the d-pronoun is discriminating, however, the N-effect disappears. This happens when several potential referents are available and the d-pronoun is used to pick out one particular referent, as in (20).

(20) Context: A group of fans are watching the Eurovision Song Contest. A group of contestants appear on screen, including Chonchita. **Pointing at Chonchita**, one of the fans exclaims:
         a.     Dani  xoSev  se-ZOT  od  tenceax.
               Dani thinks  that-ZFS yet  win- FUT
               'Dani thinks that THIS ONE might yet win.'
         b.     Die    Dani  glaubt dass DIE   gewinnen  wird.
               the    Dani  thinks  that  DFS   win         will
               'Dani thinks that THIS ONE might win.'

The generalization that the N-effect is triggered only if the d-pronoun is not being used to discriminate is further supported by the following observation. In environments with multiple antecedents, d-pronouns may have a disambiguating effect. In 21-22, for example, the use of the d-pronoun has to refer to the object in the first conjunct, and cannot pick out the subject (Ariel, 1990; Reinhart, 1995; Sichel, 2001; Bosch and Umbach, 2007, Hinterwimmer, 2015). According to Hinterwimmer (2015), personal pronouns are ambiguous, while d-pronouns can only be resolved to antecedents that are not maximally salient in the preceding sentence.

(21)     buS$_1$  diber   etmol        im    Saron$_2$
         Bush$_1$ spoke  yesterday   with   Sharon$_2$
         …**ve-hu$_{1/2}$ / ze$_2$**      lo     zaz    milimeter.
         …and-he /ZMS           not   budge  millimetre
         'Bush spoke yesterday with Sharon and he wouldn't budge an inch.'

(22)     Bush$_1$  hat      gestern       mit   Sharon$_2$ geredet
         Bush$_1$  has      yesterday     with  Sharon    spoken
         …und er$_{1/2}$/der$_2$        ist    auf    nichts          eingegangen
         …and he$_{1/2}$/DMS$_2$        is     at     nothing         agreed
         'Bush has spoken with Sharon yesterday and he didn't agree on anything.'

While the use of a personal pronoun would be compatible with both antecedents, the use of the d-pronoun would be a discriminating use, and no N-effect arises. Note that for the characterization of the notion of DISCRIMINATING USE that is relevant for the N-effect, it doesn't matter whether discrimination is deictic, as in 20, or anaphoric, as in 21-22.[4] The characterization of the context

of use which determines the appearance of the N-effect transcends the division into deixis and anaphora; what matters is the availability of a personal pronoun alternative, and that these, too, are contexts in which a personal pronoun could not be used. When d-pronouns are used to discriminate, no N-effect arises.

We predict, therefore, that even when they occupy the same positions, personal pronouns cannot be used in the same way, to discriminate. This is what we observe in contexts with multiple antecedents, such as 21-22: a personal pronoun is grammatical in the position of the d-pronoun, but it is ambiguous. It isn't used to discriminate. The same holds of the type of context in 20, with multiple potential referents. It is a bit trickier to establish this, since a personal pronoun is available and could even bear stress and be accompanied by a pointing gesture, as in 23:

(23)     Context: A group of fans are watching the Eurovision Song Contest. A group
         of contestants appear on screen, including Chonchita. **Pointing at Chonchita**,
         one of the fans exclaims:
    a.  dani xoSev se-HI  od  tenceax.
      Dani thinks that-she yet win
      'Dani thinks that SHE might yet win.'
    b.  Die   Dani glaubt dass SIE   gewinnen wird.
      the    Dani thinks that she   win    will
      'Dani thinks that SHE might win.'

Nevertheless, the personal pronoun is not being used here to discriminate: it must have been previously established that the referent is Chonchita Wurst, and the speaker is now using the pronoun to track that referent. This does not preclude adding emphasis, or even a physical gesture, perhaps to indicate joy, surprise or any other emotion that Chonchita, of all contestants, could be the winner. To the extent that a personal pronoun cannot be used to discriminate, and discriminating uses of d-pronouns are not accompanied by an N-effect, we conclude that the distribution of the N-effect is relativized to both syntactic conditions and use conditions, present whenever a personal pronoun is an available alternative. We lay out the ingredients of our proposal in the next section, and turn to motivate it in sections 4 and 5.

**3.** THE PROPOSAL

We have seen that the N-effect is a special kind of evaluative expression: rather than descriptive content, the evaluation is based in pronominal features and is determined by the presence of an alternative. The analysis we develop is built on these two properties. We argue that the N-effect arises as the result of a competition between personal pronouns and d-pronouns, where the personal pronoun is the preferred form. We proceed in three steps, each step corresponding to a central ingredient.

First, we argue that the N-effect arises from the grammar of pronominal features. More specifically, we show that the N-effect is derived from the absence of a specification for PERSON, owing to the status of the d-pronoun as a definite description. In this sense, it contrasts with personal pronouns, which are the exemplary bearers of PERSON (roughly, the equivalent of $\pi$ in earlier work, such as Béjar 2003, 2008; Harbour, 2016). We consider PERSON to have semantic content, and develop the idea that this category encodes a broad notion of subjectivity corresponding to a discourse role. An entity is specified for PERSON if it qualifies as a DISCOURSE

SUBJECT, someone who can communicate, in addition to being referred to, or communicated about; an entity is a DISCOURSE OBJECT if it can only be referred to, or be communicated about.[5] We propose that the d-pronoun, in contrast, does not encode PERSON, hence suggests that the referent might not be characterized as a potential participant: it is merely a discourse object to be referred to, or communicated about. This objectification is the basis for the N-effect: a human referent designated by a d-pronoun is characterized as someone who can be communicated about, but cannot be an active participant in a discourse. We can now understand why it would be restricted to humans: inanimate objects were never potential discourse subjects to begin with.

 The next two ingredients constitute our analysis of competition between d-pronouns and personal pronouns. Assuming our understanding of PERSON as denoting discourse subjects, and given that discourse subjects are a subset of discourse objects, it follows that the difference in PERSON between a personal pronoun and d-pronoun corresponds to a subset relation, where the denotation of a personal pronoun is a subset of the denotation of a d-pronoun. As a proper subset, it is the more informative expression. At the same time, the personal pronoun is no more complex than a d-pronoun, and possibly less. One of the d-pronominal forms in Hebrew is a synthetic form, containing the personal pronoun and a definite article: *hi* (=she) vs. *ha-hi* (lit. the-she, =that one.F); the other d-pronoun cannot be decomposed, and does not appear to be any less complex than a personal pronoun: *hi* (=she) vs. *zot* (= this one.F).

 Given the logic of scalar implicatures, combined with the restriction of alternatives to forms of equivalent (or: no lesser) complexity (Katzir 2007, Acton 2019), two things follow. First, since the personal pronoun is more informative than a d-pronoun, without being more complex, it is the preferred form whenever both are available; this excludes contexts in which the d-pronoun is used to discriminate.[6] Second, the choice of a d-pronoun, when a personal pronoun could have been used, bears consequences. Specifically, the use of a d-pronoun triggers the implicature that the individual is not a potential speech act participant.[7] This is the source of dismissiveness which we call the N-effect. These ingredients are motivated below.

## 4. PERSON ON PRONOUNS AND THE INCLUSION RELATION

A central property of the N-effect is that it does not affect the denotation of the pronoun or the truth of the sentence which contains it. As we have shown, the N-effect arises precisely when reference to a unique salient individual has already been secured, and the pronoun is *not* used to discriminate. Therefore, the N-effect cannot be restrictive – whatever content is provided does not serve to further restrict and identify the referent.

 Taking this as a point of departure, the N-effect as an evaluative expression is special in two ways. First, because it arises in the absence of descriptive content of the kind associated, for example, with epithets, and second, because it appears only selectively, depending on the availability of an alternative. How exactly is this content derived? In the analysis to follow, we will derive the N-effect as an inference rooted in the absence of a [+person] specification on d-pronouns.[8]

 In the remainder of this section we motivate the [+/-person] specification. In section 4.1. we introduce the properties of the [+/-person] specification that we have in mind. We then consider whether the N-effect corresponds to the presence of a feature or its absence, in 4.2. This is a crucial ingredient for the logic of MARKEDNESS. It is also a crucial part of our argument that the N-effect is a scalar implicature, since scalar implicatures negate, or deny, the stronger alternative that was

not chosen; a negative specification, as absence of a property, would be consistent with its status as scalar implicature. Section 4.3. argues against the N-effect as the presence of specification for [distal] or [pejorative]; and section 4.4. further motivates our analysis of the N-effect as the absence of [+person].

### 4.1. THE PERSON SPHERE

We take PERSON to be the containing category within the personal pronominal system, which has as its subsets the categories LOCAL and SPEAKER. These categories are the atoms which build up the traditional 1st, 2nd, and 3rd person categories. The relationship between them is hierarchical, similar, in part, to a classic feature geometry (Harley and Ritter 2002; but see also Harbour 2016 for the idea that these atoms are arranged in asymmetrical entailment relations within a non-geometric approach): PERSON includes LOCAL, and LOCAL includes SPEAKER. The system that we propose is partially derived from markedness considerations and the inferences that it produces (McGinnis 2005, Sauerland 2008a). Within this system, negative values for features are inferred: it is inferred that 2nd person is a LOCAL, non- SPEAKER participant, and 3rd person is a PERSON, non-LOCAL participant. Since negative values are not represented as such, but are inferred (see Section 4.4), this means that these features are privative, not binary.[9] Following Béjar 2003, 2008, Béjar and Rezac 2009, and Harbour 2016, the hierarchical arrangement of features is determined by entailment, such that PERSON includes LOCAL, which includes SPEAKER, and in other words, SPEAKER asymmetrically entails LOCAL and PERSON, and LOCAL asymmetrically entails PERSON. To this we add an outer circle, which includes the entities corresponding to the containing set of pronominal and non-pronominal nominal expressions, which we label DR_N. This label should be read as DISCOURSE REFERENT NOMINALS, and the outer circle includes all entities referred to by nominals. D-pronouns correspond to this outer sphere. We refer to this as the PERSON SPHERE, depicted in Figure 2 below.
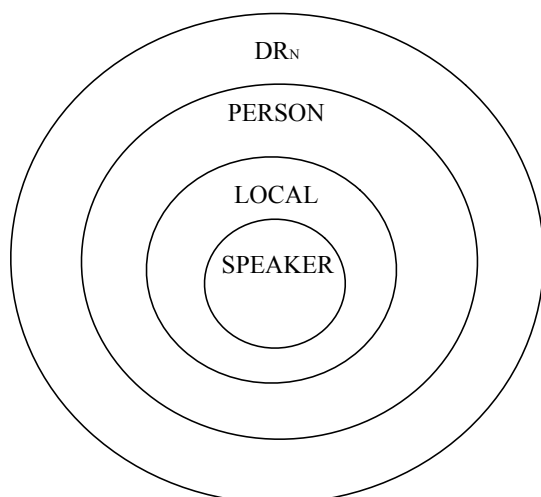


FIGURE 2. The person sphere

The idea that pronominal phi-features define semantic categories which are structured along a continuum of entailment relations which reaches up to non-pronominal nominals has a variety of predecessors: within classic feature geometries which include a non-pronominal root node R (Harley and Ritter 2002, Cowper and Hall 2002), within proposals to include a minimal feature

[d] in the outer layer of complex probes (Béjar and Kahnemuyipour 2017), and in structural accounts of the person hierarchy, where different kinds of pronominal DPs are associated with incremental structural sizes (Oxford 2017, Déchaine and Wiltschko 2002). The innovation of our proposal lies in the idea that such entailment relations may also structure the phi-features associated with pronominal arguments (as opposed to probes), such that an asymmetrical entailment relation holds also between the two outer layers, PERSON and DR$_N$, which we clarify immediately below. If we are correct, the relation of asymmetric entailment which holds between PERSONS within the domain of pronouns stretches all the way up to non-pronominal DPs. To emphasize, we are not advocating for inclusion based on grammatical class membership (i.e. that the grammatical class of nominals which denotes discourse referents includes the grammatical class of pronouns), but more specifically for an entailment relation, such that the class of entities denoted by personal pronouns asymmetrically entails the class of entities denoted by definite descriptions and d-pronouns, in the way that the class of entities denoted by *sheep* asymmetrically entails the class of entities denoted by *mammals*.

Our focus in the person sphere is on the two outer circles, and the subset relation between those pronominal forms that are associated with PERSON and those that are not, that is d-pronouns, which inhabit the outer layer. Our analysis of d-pronouns as the absence of PERSON provides new evidence of a very distinct sort for the existence of PERSON as the pronominal super-set. Under this view, even 3$^{rd}$ person is (sometimes) specified as PERSON, contra classic assumptions following Benveniste 1966. For us it is the difference between two types of 3$^{rd}$ person pronouns, encoded as PERSON and its absence, which is indicative of the linguistic reality of this category.[10]

We take PERSON to be semantically contentful and propose that this notion encodes a broad notion of subjectivity corresponding to discourse role: an entity is associated with PERSON if it qualifies as a potential discourse participant, in other words, if it qualifies as a discourse SUBJECT, someone who can communicate, in addition to being referred to, or communicated about (a discourse OBJECT). [11,12] We propose that the d-pronoun, in contrast, is a definite description pronominal, associated with the outer circle, the category corresponding to discourse referents, and in other words, to discourse objects. As such, it is not specified for PERSON, hence isn't marked as a potential participant. Below we show how this triggers the N-effect via a scalar implicature.

This explains the restriction to humans. Only humans can be demoted from discourse subject to discourse object with the use of a d-pronoun; a lamp, or a car, was never a discourse subject to begin with. The distinction between discourse subject and discourse object is distinct from the human / non-human distinction, and the N-effect is subtler than the use of an inanimate or non-human pronoun would be (see above). While it is true that only humans can be discourse subjects, it is not true that only non-humans are discourse objects: the class of discourse objects contains the class of discourse subjects. This is the basis for the asymmetrical entailment relation that holds between PERSON and the outer layer, corresponding to definite expressions: the class of discourse subjects asymmetrically entails the class of discourse objects. Accordingly, the dismissiveness encoded in the N-effect should be characterized as objectification, rather than de-humanization.

**4.2.** PRESENCE OR ABSENCE OF A FEATURE?
We now turn to develop some empirical ways to identify the pronominal feature underlying the N-effect. We begin by choosing between the presence of a feature (a positive value in classical feature structure) and the absence of a feature (a negative value in classical feature structure). We will use this terminological convention, and talk in terms of presence and absence, because it more

accurately reflects the marked / unmarked asymmetry which is at the core of our proposal.

The N-effect must be rooted in pronominal features, or indexical features more broadly construed, such as spatial deixis (*this* vs. *that*). If it is encoded via object or spatial deixis, or even directly, by a pejorative feature, it will be valued positively, that is as the presence of some property or feature positively associated with d-pronouns (such as DISTAL/PROXIMATE or shared perspective due to indexicality, or PEJORATIVE), and will have a marked value: [+distal/proximate] or [+pejorative]. If it is encoded by PERSON, it will be valued negatively, as the absence of a feature (i.e. [-person] within traditional feature geometries), and will have an unmarked value. An analysis in terms of indexical spatial features (either directly encoded or inferred), is implied within the literature on indexical expressives (Lakoff, 1974; Naruoka, 2006; Davis and Potts, 2010, Acton and Potts, 2014; Averintseva-Klisch, 2016). The unmarked value, on the other hand, is suggested by the logic of markedness and competition: the choice of a d-pronoun over a personal pronoun implies the absence of some property associated with the personal pronoun. The former route has already been taken for certain types of demonstratives (though not specifically for the N-effect), and we will begin by outlining this approach and pointing to problems which we think disqualify the approach for the d-pronoun N-effect.

**4.3.** IT'S NOT DISTAL OR PEJORATIVE
The literature on expressives contains a sub-genre dedicated to the linguistic and philosophical study of pejorative, (i.e., negative) meaning (Williamson, 2009; Hom, 2010; Hom and May, 2013, the collection of papers in Finkbeimer, Meibauer and Wiese, 2016; for pejorative indexicals see Duranti, 1984; Mayes and Ono, 1991; Naruoka, 2006; Averintseva-Klisch 2016). The dismissive character of the N-effect may suggest that it should be classified as an expressive (also known as EMOTIVE or EVALUATIVE meaning) of this type. Indexicals which convey negative meaning show that the roots of negative meaning need not be lexical, and as such they raise the question where exactly the negative ingredient resides. There is an ongoing discussion about the interaction of expressivity and indexicality, based, primarily, on demonstrative determiners in English (Lakoff, 1974; Lyons, 1977, Fillmore, 1982; Davis and Potts 2010; Acton and Potts, 2014; see more references below). Given the spatial and binary nature of demonstrative determiners such as *this* and *that* in *this chair* and *that chair*, it is tempting to relate demonstrative evaluativity to the spatial deictic system. Following the early insight of Lakoff (1974), much of the work on demonstrative determiners has considered their emotive meaning to be an extension of the spatial deictic system. We consider these ideas because of the connection to emotive meaning expressed by an indexical, broadly construed, even though they do not relate specifically to the N-effect. We argue that spatial deixis cannot be what underlies the d-pronoun N-effect.

Lakoff (1974) observed that English demonstrative determiners may express emotive meaning, in addition to their spatial orientation:

(24)    a.     That Henry Kissinger sure knows his way around Hollywood!

(Lakoff 1974: 352)

      b.     How's that throat?

(Lakoff 1974: 351)

      c.     These IBMThinkPads are amazing!

(Bowdle and Ward 1995:33)

      d.     How's that 'hope' and 'change' working out for you?

(Potts and Schwartz 2010)

Lakoff sought to derive what she called emotional deixis from spatial deixis, via the notion of solidarity: use of an emotive demonstrative indicates a desire on the part of the speaker to foster a sense of shared perspective with the addressee. This emotional solidarity is an extension of the perspectival alignment between speakers which indexical spatial expressions presuppose. Later work building on Lakoff's insight has developed the idea that demonstratives may convey complex meanings involving exclamativity and a sense of heightened emotion (Potts and Schwartz, 2010; Davis and Potts, 2010), presumptions about shared attitudes and perspectives (Bowdle and Ward, 1995; Wolter, 2006; Acton and Potts 2014), and emotional closeness or distance (Kitagawa, 1979; Ono, 1994; Naruoka, 2006; Averintseva-Klisch, 2016; these studies focus on demonstrative determiners in Japanese and German).

To what extent is the N-effect observed with d-pronouns related to these emotive demonstrative determiners? Despite obvious similarities between d-pronouns and demonstrative determiners, the interpretive effect is actually distinct. Whereas in d-pronouns it is non-controversially negative, for demonstrative determiners it is usually claimed to be exclamative and consistent with either positive or negative evaluation, depending on the context, and the choice between *this* and *that* (Lakoff 1974, Wolter 2006). The d-pronoun N-effect is simpler along these other dimensions as well; it doesn't seem to involve the exclamativity observed for English demonstrative determiners, as in 24a and 24c. These interpretive differences seem to occasion a different kind of analysis.

There are two more properties which set the N-effect apart from emotive determiner demonstratives. First, the N-effect is restricted to human reference, whereas the use of emotive demonstratives is not, as seen, for example, in 24b-d. Second, the presence of an N-effect depends on the availability of a personal pronoun alternative, a type of distribution which has not been observed for demonstrative determiners.[13] Despite these differences, it is still conceivable that the N-effect in d-pronouns is similarly rooted in the spatial deictic system. On this hypothetical approach, binary locative coordinates such as *here - there* or *this - that* would be mapped onto the binary valuation *good – bad*, where *good* is derived from *close to the speaker*.

We reject this possibility since the N-effect is not part of a binary opposition in two respects. First, there is no corresponding positive effect. This would be surprising if *here* and *there* were mapped onto *good* and *bad*; if this were a straightforward metaphorical extension, why would the mapping *proximate → good* be blocked? Second, the German d-pronoun triggers an N-effect without being part of a spatial binary opposition; the d-pronoun is homophonous with the definite determiner and its form varies only for gender, number, and case. This is unexpected if the N-effect were to derive from spatial deixis. Finally, in Hebrew, where a binary opposition is encoded, both forms may carry the N-effect, but it is the proximate form which carries the N-effect more robustly; with the distal form it is arguably subtler, showing that the mapping is not *distal → bad*.[14] This, too, is unexpected if the N-effect were to derive from mapping spatial orientation unto evaluative orientation (i.e. *distal → negative*). Since we find no cross-linguistic correlation between the presence of a binary opposition and the presence of an N-effect, we conclude that the N-effect is not rooted in binary spatial deixis.

4.4. SCALAR PERSON
We have seen that there is no PEJORATIVE or DISTAL feature whose positive value the N-effect could realize. This leads us to conclude that the N-effect is derived from the ABSENCE of a feature, consistent with the logic of markedness. Above we have proposed to locate the N-effect within the

system of discourse-roles: the system that distinguishes objects of discourse and subjects of discourse. We now provide some evidence for this view. First, we offer an argument for PERSON encoding, which is based on a necessary ingredient in the pronominal competition. Being associated with PERSON, personal pronouns denote a subset of the set which d-pronouns may denote, as illustrated in Figure 1, repeated below for convenience.
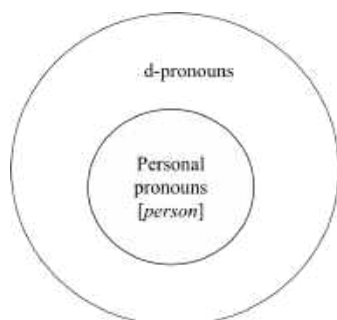


FIGURE 1. Personal pronouns vs. d-pronouns

Taking PERSON to indicate a discourse subject, the subset relation in Figure 1 reflects the structure of discourse roles: d-pronouns, like definite descriptions, refer to discourse objects, that is the entities that are referred to, or talked about; personal pronouns denote discourse subjects, that is the entities which actively participate in speech acts.[15] The class of discourse subjects is contained within the class of discourse objects. The inclusion relation structured by discourse roles and PERSON mirrors the inclusion relation that holds between the denotations of the two categories more broadly: personal pronouns are typically restricted to denote e-type entities, whereas the d-pronoun can also denote higher types, as shown for Hebrew in 25. It includes events 25a and propositions 25b.[16]

(25)　　a.　　asur　　　　la'asot **zot** / et　**ze** / /***oto**.
　　　　　　　prohibited　　to.do　ZFS / ACC ZMS / him
　　　　　　　'It's prohibited to do that.'
　　　　b.　　Miri　amra　**zot**　/ et　　**ze**　/ ***oto**
　　　　　　　Miri　said　ZFS / ACC　ZMS / him
　　　　　　　'Miri said that.'

We observe, in other words, an overlap between the two inclusion relations, one defined by discourse roles and the placement of PERSON, and one defined by the type-denotations of the pronouns considered for competition; in both cases the d-pronoun denotes a set which includes the denotations of personal pronouns. This cannot be accidental. In fact, it directly supports our scalar view of pronominal reference. It also supports our more specific choice to interpret PERSON in relation to the class of definite expressions, and in terms of discourse roles: since the class of definite expressions linguistically marks entities as objects of discourse – not just as things, but as things that are referred to via language – it seems natural to conceptualize the subclass along the same dimension, as entities that can use language (including, of course, sign language), actively, rather than in terms of broader, and perhaps equivalent epistemological notions, such as sentience. This interpretation of PERSON is also consistent, of course, with the more common interpretation of 1st and 2nd person as discourse roles.

We now offer some independent evidence for our claim that the N-effect involves the negative, hence unmarked, value of a feature. In his discussion of the semantic markedness of phi-features, Sauerland (2008a) develops a variety of diagnostics for identifying the marked and unmarked values in a binary feature opposition.

The most telling diagnostic is emergence after blocking: when the more marked category is blocked, the unmarked category can replace it. For example, in formal settings, a German second person pronoun is blocked, and a third person plural pronoun can replace it; this is because 3$^{rd}$ person is unmarked, compared to the local 1$^{st}$ and 2$^{nd}$ persons. This is precisely the kind of alternation demonstrated in detail above: when a 3$^{rd}$ person pronoun is independently blocked, a d-pronoun can be used in virtually the same contexts, where a unique and salient referent has been established (i.e. the non-discriminating use), in other words, as semantically identical to a personal pronoun (except for the N-effect). This semantic identity follows, because [-person] is unmarked. It isn't part of the linguistic representation of the pronoun, just like the unmarked semantics of 3$^{rd}$ person may be shed when a 3$^{rd}$ person pronoun is used for formal address.

A second diagnostic is based on the characterization of a plurality of members. Sauerland 2008a argues that within a gender binary, FEMININE is the marked value, hence masculine is [-feminine] and feminine is [+feminine]. When a plurality of entities is mixed and includes both feminine and non-feminine members, only [-feminine] can be used; [+feminine] is reserved for situations in which all members satisfy the characterization, when all members are feminine. The N-effect associated with plural d-pronouns seems to be weaker than the effect associated with singular d-pronouns. We can compare the N-effect which arises with a unique salient individual in the context, in (18) repeated in (26) below, with a minimally different situation in which there are multiple individuals who are salient in the context: Chonchita's band members, all of which are on screen at the time of utterance. This too is a context in which the d-pronoun is not used to discriminate, and an N-effect would be expected.

(26) Context: A group of fans are watching the Eurovision Song Contest.
Everyone's favorite (Chonchita Wurst) appears on screen.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| a. | Zot | od | tafti'a | et | kulam. |
|   | Z$_{FS}$ | yet | surprise | ACC | everyone |

'This one will surprise everyone.'

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| b. | D-ie | wird | jetzt | alle | überraschen. |
|   | D$_{FS}$ | will | now | all | surprise |

'This one will surprise everyone.'

(27) Context: A group of fans are watching the Eurovision Song Contest.
Everyone's favorite (Chonchita Wurst and her band) appears on screen.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| a. | ele | od | yafti'u | et | kulam. |
|   | Z$_P$ | yet | surprise | ACC | everyone |

'These will surprise everyone.'

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| b. | Die | werden | jetzt | alle | überraschen. |
|   | D$_{PL}$ | will | now | all | surprise |

'These will surprise everyone.'

The N-effect in (27) is weaker than it is in (26). This may suggest that the use of a plural d-pronoun need not entail that the speaker holds a dismissive attitude towards all members of the

plurality.[17] This is expected if the N-effect is represented as absence of PERSON (i.e. [-person] in traditional feature geometries), an unmarked feature.

Taken together, the evidence from markedness seems to suggest absence of a feature (or a negative value). Since [gender] and [number] seem semantically irrelevant, and [human] or [animate] seem too strong, we conclude that absence of PERSON underlies this meaning, with the discourse-role implications outlined above.

Having established that the N-effect is derived by the absence of PERSON, we now turn to discuss the nature of this inference and the kind of calculation that is involved.

**5.** COMPETITION AND SCALES
We have seen that when a d-pronoun competes with a personal pronoun the N-effect is triggered, and we have concluded that the N-effect is a negative inference, triggered by the absence of PERSON. This implies that the personal pronoun is the preferred form. We now turn to discuss the source of this preference, and the kinds of scales that structure pronominal competitions and preferences. Classical Gricean theory associates implicatures with particular maxims, and maxims are associated with distinct scales. Two scales are particularly relevant, associated with two distinct maxims: an informativity scale, based on asymmetric entailment, and paired with a Quantity maxim, and a formal scale based on length or complexity, associated with a Manner maxim. Over the years, numerous cracks in the classic Gricean picture have been identified, the most relevant one being the pairing of scales and maxims. Specifically, it has been recognized that complexity-length considerations play a role in scalar implicatures (i.e. Quantity implicatures in Grice's original classification) by restricting the set of possible alternatives (Katzir 2007, Katzir and Fox 2011, Marty 2017, Acton 2019). The significance of formal considerations for the calculation of content-based implicatures undermines the original categorical division into Quantity and Manner implicatures. However, our primary empirical concern here is with the scales which structure pronominal preferences, rather than the individuation of maxims or the wording of the maxims: Is there evidence for a pronominal scale based on asymmetric entailment? Is there a formal scale based on markedness or length-complexity which could be operationalized to generate the N-effect implicature? We begin by examining versions of these scales separately, and close with a brief discussion based on a more contemporary understanding of scale interaction in the derivation of scalar implicatures.

Returning to the scales to be considered, the following two seem most relevant: a scalar implicature, based on an entailment scale, and a scale based on length or markedness, in the spirit of Horn (1984), Blutner (2000), Roberts (2002), Schlenker (2005), and especially Rett (2015, 2019), where evaluative meaning is derived as a manner implicature. On an informativity-based scale, the objects to be compared are denotations arranged according to a scale of denotation inclusion, where the form that applies to the most informative denotation is preferred. This is the person sphere. On a markedness-based scale, the objects to be compared are linguistic forms, where personal pronouns are preferred over d-pronouns because they are shorter, or simpler, or less marked in some other respect (Patel-Grosz and Grosz 2017 for d-pronouns and personal pronouns, and Roberts 2002, Schlenker 2005 for pronouns and definite descriptions). The choice between the two, therefore, is a choice between the kind of preferences, represented as scales, which can generate pronominal implicatures such as the N-effect.
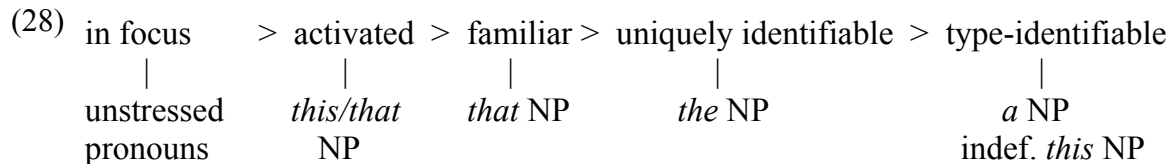
**5.1.** THE N-EFFECT AS A SCALAR IMPLICATURE

We have suggested that personal pronouns are specified for PERSON and that their denotation is contained within the class of objects denoted by a d-pronoun. This suggests a scalar relationship between the denotations of the two pronominal classes. A calculation based on this scalar structure will produce a scalar implicature rooted in PERSON.

We are suggesting, in other words, that the relationship between pronominal classes may be scalar, similar to the relationship between *a* and *the*, in a departure from the traditional view of pronouns and phi-features. According to the traditional view, pronouns and phi-features are structured around paradigmatic opposition and a complement relation, and features are usually binary. On the view that we are developing, the relation between the two pronominal classes is one of inclusion, and features do not have a binary structure; the negative value is inferred.[18] The ideas embedded in the generalized person sphere have been independently motivated by a set of entirely distinct phenomena related to agreement splits (Béjar, 2003, 2008; Béjar and Rezac, 2009), and have a precedent in the view of phi-features as semantically interpreted, and as triggering presuppositions based on considerations of markedness (McGinnis, 2005, 2008; Sauerland 2008a, 2008b).

The scalar arrangement of personal pronouns and d-pronouns is based on informativity and asymmetrical entailment, such that d-pronouns are less informative than personal pronouns. However, this may not be the only way to quantify informativity. If we consider other dimensions of content, d-pronouns may also be *more* informative than personal pronouns. If so, it is possible that in particular contexts of use, the relative informativity of a d-pronoun makes it a better candidate than a personal pronoun. We address this possibility in order to further substantiate our claim that a personal pronoun is the preferred choice in the contexts in which an N-effect is triggered. This qualification is important. As we show below, we agree that there are aspects of demonstrative meaning and use which are associated with d-pronouns and are not shared by personal pronouns. We have characterized these meaning components and use conditions as discriminating uses; recall the difference between 20 and 23 above, which showed that personal pronouns cannot be used to discriminate, whereas d-pronouns can. In the spirit of numerous treatments which add some semantic ingredient to demonstratives to account for these uses, we assume that demonstratives, including d-pronouns, have an extra ingredient which certain definite descriptions (weak definites, in particular) lack (Kaplan 1989, Roberts 2002, Wolter 2006, King 2008, Elbourne 2008, Nowak 2014, Ahn 2019).[19] However, the N-effect arises only when the d-pronoun is *not* used to discriminate, and in these contexts, the d-pronoun bears no additional meaning component which would make it more informative along some dimension outside of the person sphere. When the d-pronoun is used to discriminate, the d-pronoun is, indeed, more informative in a way which justifies its choice over a personal pronoun. Hence, no N-effect arises.

The idea that demonstratives are more informative, or more marked, than personal pronouns is the more common view, expressed in some of the scales familiar from previous work (Prince 1981, Gundel, Hedberg and Zacharsky 1989, 1993, Ariel 1999, and more recently Ahn 2019). These scales express a hierarchy of anaphoric expressions, according to the degree to which their referents are given, or mentally activated (Prince 1981, Gundel, Hedberg and Zacharsky 1993, Ariel 1999, among others): in this system, each cognitive status entails the lower ones, to its right, and the use of an NP at a certain point on the scale implicates that the speaker could not have felicitously referred to the same entity by an NP higher on the scale, (i.e. to its left).

(28)    in focus     >   activated   >   familiar >   uniquely identifiable   >   type-identifiable
              |                |            |            |             |
      unstressed    *this/that*    *that* NP     *the* NP            *a* NP
      pronouns      NP                                indef. *this* NP

It is true that these degrees of mental activation are in some sense scalar, and Gundel, Hedberg and Zacharsky 1993 seek to derive scalar cognitive status implicatures from this hierarchy. Note that the ordering of personal pronouns and demonstrative pronouns (which, we assume, are the same as d-pronouns in all relevant respects) is the reverse of our person sphere in terms of informativity: demonstratives (including demonstrative pronouns) are used to denote less salient referents than personal pronouns are used to denote, because they are *more* informative. The underlying intuition, that more cognitive work needs to be done to identify a less salient referent, is expressed in semantic terms in Ahn 2019, who proposes two related scales, one for pronominals and one for full lexical DPs.

(29)   Pronominal Scale:   {*it, that*}          Adnominal Scale: {*the girl, that girl*}

In both, the demonstrative expression contains an additional restriction R and is more informative, or marked, than its alternative. The Economy Principle associated with these scales, 'Don't over-determinate!', requires speakers to say as little as they can without compromising legibility, corresponding to Grice's second maxim of Quantity 'Don't say too much!'. While Ahn's scale would arrive at the same general preference for a personal pronoun, it does so via a different route: by assigning more informativity to the demonstrative, and requiring speakers to be *least* informative, rather than most informative as in our approach and in more traditional scalar implicatures. As explained above, we do not deny that d-pronouns could be ranked as more informative than personal pronouns along some dimension of informativity. Importantly, such a ranking cannot be at the core of the N-effect, which arises when the d-pronoun is *not* used to discriminate. This is precisely what the N-effect reveals: that alongside the added informativity of demonstratives and d-pronouns, when used to discriminate, there is also a basic, non-contextual, sense in which personal pronouns are more informative. On our account, d-pronouns, as a class - discriminating or not - denote discourse objects, a class which may also include the class of discourse subjects, as we can always communicate about the people we communicate with.

**5.2.** THE N-EFFECT AS A MANNER IMPLICATURE
We have seen that it is possible to derive the N-effect as a scalar implicature, where the preference for a personal pronoun over a d-pronoun is based on entailment and informativity. Could it also be derived from a competition between pronominal forms? In principle, it could be, as long as the formal competition can generate an inference. We examine the possibility that pronominal competition is derived via a manner implicature within a Neo-Gricean framework (Horn, 1984; Blutner, 2000; Jäger 2002; Rett 2015, 2019), and in particular, a preference for brief, less marked forms: a personal pronoun is preferred over a d-pronoun because it is less costly – it is simpler, shorter, or less marked. At first glance this might seem like an obvious direction, since in some cases, the personal pronoun is a proper subpart of the d-pronoun (Wiltschko 1998, Sichel 2001). For example, the Hebrew distal d-pronoun is transparently composed of the definite article and the personal pronoun form, (i.e. *ha-hi* = the she)) as is the German d-pronoun which consists of the definite marker *d-* and the personal pronoun form (*der = d+er)*. However, this doesn't hold across the board; the Hebrew proximate form cannot be decomposed and is no more complex on the surface than a personal pronoun. Similarly, the German feminine personal pronoun has an added *s-* not present in the d-pronoun (*d-ie* vs. *s-ie)*. We need to look beyond morphology for a measure of markedness or length-complexity that would rank personal pronouns as less marked, less long, or less complex than d-pronouns. We do not outright exclude this possibility, and return to this

when we consider the contribution of formal complexity to the selection of alternatives, but we see some significant challenges for a highly underspecified theory of markedness along the lines of Horn 1984 and Rett 2015, 2019.

A calculation based on form (a subpart of Grice's original Manner maxim) compares forms, and proceeds from the assumption that the competing forms are identical in meaning. We have shown that the denotation of the d-pronoun includes the denotation of the personal pronoun, but for the purpose of considering a form-based inference we set inclusion aside, and fix identity of denotation to the non-discriminating contexts in which both pronominals are used and the N-effect is triggered. In a scale based on form, some forms are more optimally suited than others to express a given interpretation; the implicature arises due to the choice of a less-preferred form.

For concreteness, consider the Pragmatic Division of Labor (Horn, 1984), which maps the Gricean maxims to a speaker-based maxim, the R-Principle, which dictates an economy of form, and a hearer-based maxim, the Q-Principle, which requires a sufficient amount of information. These principles are defined in terms of markedness, a notion which applies both to forms and to interpretations. The combination of formal and interpretive ingredients is crucial, since the competition between pronominal forms produces an inference.

(30)   Q-Principle:   'Say enough for the hearer to understand you!'
                      = Do not use an unmarked form for a marked meaning.
       R-Principle:   'Be brief, do not say too much!'
                      = Do not use a marked form for an unmarked meaning.

These principles instruct interlocuters to use marked forms for marked meanings and unmarked forms for unmarked meanings. An example from the domain of pronouns is the AVOID PRONOUN PRINCIPLE (Chomsky 1981; Horn, 1984), where a pronoun is interpreted as disjoint from an antecedent when it alternates with PRO.

(31)   a.   John$_1$ would much prefer [his$_{2/*1}$ going to the movie]
       b.   John$_1$ would much prefer [PRO$_1$ going to the movie].
       c.   John$_1$ would much prefer [his$_{1/*2}$ own book].

Horn considers the overt pronoun to be the marked form, and the CONTROL reading to be the unmarked interpretation; the unmarked form PRO is used for the control reading, and the marked, overt, form, for marked interpretations, which presumably are all the other readings that personal pronouns can have. Extending this reasoning to the personal pronoun/d-pronoun alternation, forms would be mapped to meanings as outlined in 32.

(32)   a.   Personal Pronoun: Unmarked form, unmarked situations
            d-pronoun: marked form, marked situations
       b.   The hearer reasons that the speaker had reasons to avoid the personal
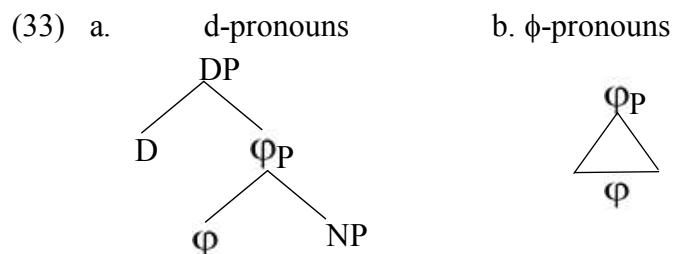            pronoun, and to use the d-pronoun instead.

We see a few issues with this type of implementation.[20] First, how would the hearer or speaker know which of the forms is the more marked? Markedness of forms can be understood in a variety of ways. Levinson 2000, for example, allows multiple sources for form-markedness: marked forms are more morphologically complex, less lexicalized, more periphrastic, less frequent or usual, and

less neutral in register; Katzir 2007 considers structural complexity. Unlike the choice between a pronoun and definite description, previously analyzed as a manner-based preference for simpler or shorter forms (Roberts 2002, Schlenker 2005), these parameters do not clearly distinguish the two pronouns. Some, but not all, d-pronouns have a personal pronoun as a subpart, others have the same length as personal pronouns. The two pronominal classes are equally non-periphrastic, they are used with the same frequency, and there are no consistent dialect or register differences across the two languages. Therefore, whatever would make the personal pronoun less marked or the better choice would have to be based on a property that is more abstract than sheer length or the inclusion of descriptive content in the restrictor; for example, syntactic structure (Wiltschko 1998 and Patel-Grosz and Grosz 2017), to which we return below.

Turning to interpretive markedness, the N-effect is obviously more marked than the absence of an N-effect, but this cannot be the basis for d-pronoun markedness, since this is the meaning that we want to derive as a result of violating a pre-established preference. If it were not derived, the hearer would have to rationalize that the speaker's reason for avoiding the personal pronoun is her dismissive attitude, but the N-effect couldn't possibly be constructed from scratch.

Similar considerations apply to the analysis of evaluativity as a markedness-related implicature in adjectival antonyms like *tall-short* (Rett 2015, 2019). Rett postulates that what makes *short* more marked is its atypicality, and it is atypical because it is evaluative. While characterizing a human being as not being a potential discourse subject certainly qualifies as an atypical characterization, it is not clear why, given an infinite number of ways in which individuals could count as atypical, it is this particular characterization which emerges. It is therefore difficult to derive the content of the N-effect from this general notion of markedness of interpretation.[21] On our approach, the content of the N-effect is directly derived from the non-choice of a personal pronoun.

Finally, we consider a syntactic measure of complexity, in terms of the amount of containing structure associated with pronominal forms. Wiltschko 1998 and Déchaine and Wiltschko 2002 argue that d-pronouns are DPs, associated with more containing structure than personal pronouns, which are $\phi$Ps.

(33)  a.   d-pronouns          b. $\phi$-pronouns

```
          DP                        φP
         /  \                      /  \
        D    φP                   /____\
            /  \                    φ
           φ    NP
```

Grosz and Patel-Grosz 2017 develop an analysis of the preference for personal pronouns over d-pronouns in these terms, combined with MINIMIZE STRUCTURE (Cardinaletti and Starke 1999). This is useful for constructing the class of alternatives, to which we return, but it cannot be the exclusive basis for deriving the N-effect. The most obvious challenge is that a contentful inference cannot be based exclusively on structure. Additionally, a syntactic division cannot capture the distribution of the N-effect. The syntax of $\phi$P vs. DP leads to the expectation that an N-effect should be associated with any use of a d-pronoun, discriminating or not. One could stipulate that the phrase structure actually draws a three-way distinction: $Det_{discrim} \rightarrow Det_{non\text{-}discrim} \rightarrow \phi P$, for discriminating d-pronouns, non-discriminating d-pronouns, and personal pronouns,

respectively. We see no particular motivation for this division. Moreover, it is of no help, since it doesn't express the equivalence of non-discriminating d-pronouns and personal pronouns, easily and naturally represented in our person sphere, where the referential space covered by the outer sphere includes the space covered in the inner sphere.

Yet we do not think that syntactic structure is necessarily irrelevant. Katzir 2007 has argued that the alternatives for scalar implicatures are determined by structural complexity, such that alternatives cannot be more complex than the item they are competing with. The tree structures in (33) would imply that a personal pronoun qualifies as an alternative to a d-pronoun, whereas a d-pronoun would not qualify as an alternative to a personal pronoun, *unless* it was used to discriminate - the correct result.

**5.3.** THE N-EFFECT AS AN IMPLICATED PRESUPPOSITION

We have established over the last few sections that the inference which arises from the choice of a d-pronoun is a negated grammatical feature, PERSON, and that this grammatical feature bears content, namely subject of discourse. Before concluding, we address some properties which appear at first glance to conflict with our claim that the N-effect is an implicature. In particular, presuppositions project out of the class of contexts called *Holes*, which includes negation, questions, modals and conditionals, and the projection pattern for the N-effect is similar. Implicatures, in contrast, are reversed in the scope of negation.

When a Hole combines with an AT-ISSUE PROPOSITION p the result of that combination does not entail p, as in 34. As is well known, presuppositions in these environments are not cancelled. The sentences in 35 continue to presuppose that Kevin has a house.

(34)  a.       Kevin lives in LA.
       b.       Kevin doesn't live in LA.
       c.       Does Kevin live in LA?
       d.       Kevin might live in LA.
       e.       If Kevin lives in LA, I will visit him there.
(35)  a.       I stayed at Kevin's house in LA.
       b.       I didn't stay at Kevin's house in LA.
       c.       Did you stay at Kevin's house?

The N-effect displays a similar pattern. When a sentence containing a d-pronoun is negated, the negation does not apply to the N-effect. It projects, on a par with presupposed content.

(36)  Zot     lo      tenaceax
       ZFS    NEG   win
       'This one won't win.'
       Cannot mean: 'She will not win and it's not the case that I don't respect her.'

Similarly, in questions, the N-effect does not fall within the scope of the question operator. In other words, it is not included in the content which is questioned in 37. The first response by the interlocutor is odd because it is denying an N-effect while assenting to the containing proposition, suggesting that the QUESTION UNDER DISCUSSION is a question about the N-effect. In the second response, the interlocutor assents or denies the proposition, and separately denies the N-effect, via the use of *but*, and this is felicitous.

(37)  A:   Icbena        otxa   zot?
           Annoyed       you    ZFS
           'Did that-one annoy you?'
      B:   #lo, hi xavara Seli, aval hi mamaS icbena oti.
           'No, she's my friend, but she really annoyed me.'
      B:   ken/lo, aval hi xavera Seli ve-ani ma'arix ota.
           'Yes/no, but she's my friend and I actually respect her.'

Presuppositions differ, in this respect, from ordinary implicatures. Scalar implicatures are reversed in the scope of negation (Atlas and Levinson 1981, Sauerland 2004): a positive sentence with *some* implicates the negation of the sentence with *all*, and similarly, the negative sentence with *all* implicates its negation when *some* is replaced by *all*. Since the two negations cancel each other, this derives the implicature that the Philharmonic played some of Beethoven's symphonies as in 38.

(38)  a.   The Philharmonic played some of Beethoven's symphonies.
           → they didn't play all
      b.   The Philharmonic didn't play all of Beethoven's symphonies.
           → they didn't not play some → they played some

That the N-effect patterns with presuppositions, and not with ordinary implicatures, is surprising, at first glance, if the N-effect is a type of scalar implicature. We can resolve this tension without compromising our claim that the N-effect is an implicature, if PERSON is presuppositional (Sauerland 2008a, and more recently Charnavel 2019, cf. Sudo 2013, who argues that PERSON is asserted, not presupposed), and scalar implicatures may also be derived on the basis of presupposed material (Percus, 2006, Sauerland, 2008b). We assume, with Magri 2009 and Marty 2017, that the calculation of such ANTIPRESUPPOSITIONS is no different from the calculation of implicatures based on assertive content.[22]

If phi-features, when interpreted, are interpreted as a presupposition on the reference of an expression which denotes an individual, it follows that phi-feature markedness must involve a mechanism for calculating competition among presuppositions. Sauerland (2008b) argues that MAXIMIZE PRESUPPOSITION 39 (Heim, 1991; Hawkins, 1991, Percus 2006) extends to phi-features.

(39) Make your contribution presuppose as much as possible!

Maximize Presupposition is a version of the Quantity Maxim, extended to the domain of presuppositions. This is fully compatible with the inclusion relation proposed above. Continuing to hold that personal pronouns are specified for PERSON, and that PERSON is associated with the interpretation suggested above (subject of discourse), the use of a d-pronoun when a personal pronoun is available implies that the speaker does not consider the referent to be associated with PERSON. The only change is that PERSON is a presupposition, and the inference that the referent lacks PERSON is now an implicated presupposition, rather than an ordinary implicature. While both personal pronouns and d-pronouns can denote subjects of discourse, only the personal pronoun presupposes this property, so Maximize Presupposition dictates that it be used whenever possible.

**6.** CONCLUSIONS

When compared with reflexives, *se* pronouns, PRO, or a wh-trace, a personal pronoun is the less preferred form (Montalbetti, 1984; Hellan, 1988; Burzio, 1991; Williams, 1997; Bresnan, 2001; Safir, 2004, Sichel 2014 among others). Here we have identified a pronominal competition in which the personal pronoun is preferred over a d-pronoun. This suggests that personal pronouns are not dedicated to be used as a default, when other means fail. Whether a pronoun is preferred or dis-preferred depends on its alternatives, and implies a scale of preference, perhaps multiple scales, which structure pronominal alternatives along particular dimensions. We have argued for a scale which is based on denotations, similar to the scale which structures the calculation of scalar implicatures among determiners. A central ingredient in our scalar analysis of pronominal denotations is an expressive meaning component, the N-effect, which arises whenever a personal pronoun could also be used. We argued that this meaning ingredient is not due to a positive specification of PEJORATIVE or DISTAL, but to the absence of PERSON, which, according to the logic of markedness, excludes an interpretation as discourse subject.

The novel ingredient is the scalar arrangement of pronominal denotations in which the denotations of personal pronouns are included within the denotations of d-pronouns. This relation has been obscured until now, since the comparison of demonstratives (including d-pronouns) to personal pronouns has considered demonstratives as a class, including discriminating uses. In these contexts a demonstrative is indeed more informative than a personal pronoun. The distribution of the N-effect highlights the difference between discriminating and non-discriminating uses of d-pronouns, and as a consequence, it reveals the reverse relationship between personal pronouns and d-pronouns, and definite descriptions more generally: the denotation of the former is included in the latter. This places the relation between definite descriptions and pronouns on a continuum with the inclusion relation among different values for PERSON: speaker, local, person. Perhaps this is not accidental. If we are correct, the person sphere bears various consequences for the integration of personal pronouns into the landscape of nominal expressions in general, too broad to consider in any detail here. One potential consequence is that a personal pronoun is not simply identical to a definite description, minus the descriptive content.

There is an ongoing debate in the literature regarding the status of scalar implicatures, and whether they are part of the pragmatics, related to speaker's intentions, part of the grammar and calculated locally, or within the lexicon, associated with particular lexical items. This debate has multiple empirical foci, and here we have only been able to hint at some aspects of the N-effect which might be relevant to a few strands of the debate. Our study shows that scalar implicatures must be able to apply to linguistic information which is maximally fine-grained, such as phi-features, and that the scales upon which they are based, along with the scales which restrict alternatives, may be abstract to a significant degree. Whether this is an argument for the lexical or grammatical status of scalar implicatures or not, and how our observations might be developed into a full-fledged argument in this context, we must leave open. We hope that future work will continue to integrate our empirical observations into more general discussion about the landscape of nominal expressions and the nature of conversational implicatures.

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[8] In what follows, we use the term PERSON to refer to the contentful category, and reserve the feature-notation [+/- person] to refer to a valued feature, positive or negative. As should be clear from the text, we view the feature as a privative category; the feature-bracket notation is used only descriptively, as a convenient tool for referring, when necessary, to the presence of the feature vs. its absence.

[9] This is not to say that the language faculty excludes all binary features.

[10] A similar distinction within the class of third person pronouns is well-documented in Algonquian languages, and corresponds to the contrast between PROXIMATE and OBVIATIVE nominals (Bloomfield, 1946). Some reason to suspect that these distinctions are closely related is that the proximate / obviative distinction is governed by a combination of syntactic, referential, and discourse considerations, similar to the choice between personal pronouns and d-pronouns. We speculate that obviative corresponds to the PERSON-lacking category of d-pronouns in Hebrew and German.

[11] See Culy (1997) for an important distinction between a speech-oriented notion of logophoricity in terms of discourse-role, as discussed above, and an epistemologically oriented notion, in terms of perspectival center (see also Reinhart 2000, Pancheva and Zubizaretta, 2018, Sundaresan, 2018, among others, for the linguistic significance of sentience; Charnavel and Mateu 2015 for anti-logophoric pronouns; and Hinterwimmer and Bosch 2016 and Goebel 2018 for the proposal that d-pronouns are anti-logophoric.) Culy 1997 argues that the basic role of distinctively marked logophoric pronouns is in indirect discourse, embedded under predicates of speech, whereas their role as a perspectival center is only secondary.

[12] There exist, of course, personal pronouns which can denote non-humans, such as English *it* and German *es*, and weak pronouns of the Romance/Germanic variety. They all seem to be structurally deficient pronouns, and we speculate that the semantically contentful notion of PERSON that we are developing is located high in the functional sequence associated with pronouns, and specifically in the nominal speech act domain, in the sense of Ritter and Wiltschko 2018, 2019.

[13] Potts and Davis 2010 do include a component of competition in their account, but it applies to the distinction between demonstrative determiners, and ordinary definite articles, which are not associated with exclamativity. We leave open whether competition between a definite article and a demonstrative determiner is related to the competition between a d-pronoun and a personal pronoun.

[14] We speculate that the N-effect is subtler with the distal form because this form is more dedicated to spatial deictic use, and is used much less often than the proximate form in the non-discriminating contexts that trigger the N-effect.

[15] This applies to STRONG personal pronouns, which must denote humans, whereas WEAK personal pronouns may also denote non-human entities (Cardinaletti and Starke 1999). How exactly weak pronouns differ from strong pronouns is an intriguing and important question which can only be addressed with a better understanding of how the weak-strong typology is to be integrated with the person sphere more generally, questions which we leave open for future research.

[16] The situation in German is less clear. Whereas d-pronouns are possible in these event/proposition denoting contexts, the inanimate pronoun is also possible.

(i)     weil       man **das** / **es** nicht tut.
        because  one  DNS / it  not  does
        'because one doesn't do that'

(ii)　Er　hat **das**　/**es** nicht geglaubt.
　　　He has DNS / it　not　believed.
　　　'He didn't believe it.'

We speculate that denotation beyond e-type entities is directly related to the absence of PERSON.

[17] The intuition that the N-effect is weaker in (27), with a plural d-pronoun, is subtle, and it is not immediately clear how to interpret it. It may imply that a dismissive attitude does not hold towards all members of the group, or it may imply that there is distancing which is not necessarily negative.

[18] See also Roberts 2002, Wolter 2006, and Acton 2014 for privative, rather than binary, features for determiners and pronouns.

[19] We refer here to the distinction between weak and strong definites; following Löbner 1985, 2011, Wiltschko 2013, Ortmann 2014, Sichel to appear, we associate the discriminating use also with strong definites.

[20] The reservations which we raise in the main text apply to later versions within bi-directional OT as well (Blutner, 2000; Jäger 2002, Zeevat, 1999). Within a bi-directional OT, an expression is blocked for a particular interpretation if that interpretation could be generated more economically by an alternative expression. For the reasons given in the text, we think that this notion of economy, though intuitive, is too vague to rank these pronouns.

[21] We note that the N-effect does share some properties with manner implicatures. Like typical manner implicatures, it is tied to a particular form, and in this respect, it differs from most kinds of conversational implicatures, which are tied to a more general notion of 'what is said'. Like manner implicatures and conventional implicatures, the N-effect is not easily cancellable. Horn 1989 and Levinson 2000, in their discussion of quantity and manner implicatures, suggest that the two differ in cancellability because the former is calculated on content and the latter on form. We agree with the general logic of this explanation, and suggest that non-cancelability follows from the special nature of this scalar implicature, rooted in a morpho-syntactic feature, PERSON.

[22] We leave open more specific questions of implementation, as well as other aspects of the similarity of anti-presuppositions to ordinary implicatures (see, in particular, Singh 2011, Gajewski and Sharvit 2012).