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Copular Agreement in Hindi-Urdu

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In this paper, we present an analysis of Copular Agreement in Hindi-Urdu. We examine assumed identity copula structures (e.g., *For today, I am him.*), where we show that the broad characterization of the Hindi-Urdu agreement generalization – 'agree with the highest unmarked DP' – is insufficient: a structurally lower unmarked nominal has a demonstrable impact on the availability of agreement with a higher unmarked nominal. This interference arises as a function of the person specifications of the various unmarked nominals in the structure. Previous approaches account for such effects either in terms of the licensing needs of the nominals involved in identity copulas (Coon et al. 2017; Keine et al. 2019), or in terms of the properties of the person agreement probe (Coon & Keine 2020). We argue that in order to account for the interference effects observed in Hindi-Urdu, a combination of both perspectives is required. Given the impact of realization on the grammaticality of identity copula sentences – verbal morphology in certain tenses and the presence/absence of copulas modulate grammaticality – a feature gluttony analysis (Coon & Keine 2020) is required. Under this approach, for certain combinations of person features, the finite agreement probe is in an agreement relationship with both the nominals in the structure. Ungrammaticality arises when there is no morphological exponent that can realize the features associated with those two agreement relationships. Further, we establish that both the DPs in identity copula structures are licensed by finite T, and thus an analysis entirely without a licensing component is untenable. We also show that the issue of licensing in copular constructions (and elsewhere) in Hindi-Urdu can be handled through the adoption of a Kalin (2018) style analysis.

1 Assumed Identity Sentences

Hindi-Urdu agreement has been the focus of much prior work in syntax (Pandharipande & Kachru 1977; Mahajan 1990; Butt 1993; Bhatt 2005; Chandra 2007; Keine 2016: among others). As has been demonstrated by this large body of work, verbal agreement is with the highest case-unmarked argument in Hindi-Urdu. The agreement pattern corresponding to this agreement generalization is illustrated in 1. In 1a, the subject DP is the highest unmarked argument and is agreed with[1]. In 1b, the subject DP is overtly case-marked by the ergative marker =*ne*, which makes the features of the subject inaccessible for agreement. The verb agrees with the object DP instead as it is unmarked for case. In 1c, both the subject and the object are overtly case-marked and inaccessible for agreement, and therefore, default agreement arises.

(1) a. Subject Agreement
S	O		**V**
mi:na:	donõ	kita:bẽ	paṛhegi:
Mina.FS	both	books.FP	read.FUT.FS
    'Mina will read both books.'

   b. Object agreement
S		**O**	V	
mi:na:=ne	donõ	**kita:bẽ**	paṛhi:	thĩ:
Mina.FS=ERG	both	books.FP	read.PFV.F	be.PST.FP
    'Mina had read both books.'

   c. Default agreement
S		O		V		
mi:na:=ne	donõ	kita:bõ=ko		paṛh	liya:	hɛ
Mina.FS=ERG	both	books.FP.OBL=DOM	read	take.PFV.DEF	be.PRES.DEF
    'Mina has read both books.'

However, as we will show below, agreement in copular sentences in Hindi-Urdu does not follow this straightforward picture[2].

Copular structures are 'sentences of the form *A is B*' (den Dikken & O'Neill 2017) which occur in various guises, for example, predicational, specificational, presentational/identificational and assumed-identity structures. See den Dikken & O'Neill (2017) and references therein for a review of the taxonomy of copular constructions. The copular structures under consideration in this

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[1] The agreement controller and the agreeing verb are boldfaced throughout the examples in the paper.

[2] Unless indicated otherwise, the judgments for Hindi-Urdu reported in this paper are based on the authors' language variety. Both authors are speakers of 'western' Hindi as spoken in Western Uttar Pradesh, and in Delhi and surrounding cities.

paper contain two DPs[3], we will be using the terms DP1 and DP2 to refer to them, with DP1 being the first (pro)nominal and DP2 the second (pro)nominal in neutral word order.

While the basic Hindi-Urdu agreement pattern of 'agree with highest unmarked argument' carries over to predicational copula sentences, the picture is different for other copular structures which do not fit with this generalization in distinct ways. Further cuts can be made between specificational and presentational/identificational sentences on the one hand and assumed identity sentences on the other.

In 2a, which is a predicational sentence, DP1 – the highest case-unmarked argument in the structure – is agreed with. On the other hand, in 2b and 2c, which are specificational and presentational sentences respectively, agreement is consistently controlled by the structurally lower unmarked nominal, DP2 *tum* 'you', rather than by DP1 which has a third person singular form.

(2) a. Predicational Copula

  DP1 DP2 **V**

  tum problem **ho**

  you problem.3s be.PRES.2S

  'You are the problem.'

 b. Specificational Copula

  DP1   **DP2** V

  problem **tum** ho

  problem.3s you be.PRES.2S

  'The problem is you'.

 c. Presentational Copula

  Context: pointing to a person in a picture

   DP1 **DP2** V

  ye insa:n **tum** ho

  this human you be.PRES.2S

  'This person is you'.

However, it is in assumed identity copula sentences like 3, where one individual takes on the identity of another, e.g., in an identity swap context or in a play where one plays a different character, that the picture is most complex vis *à* vis agreement. In 3a, agreement is controlled by DP1, but in 3b, agreement with DP1 is ungrammatical, and in fact there is no choice of agreement, including with DP2, even as it is the person specification of DP2 that appears to

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[3] The label DP is used for consistency and does not amount to a commitment about the internal structure of these nominal phrases in terms of the NP/DP distinction (Bošković 2005) in Hindi-Urdu. Unless mentioned otherwise, nothing crucial rests on the use of the label DP as opposed to NP which is adopted by other authors such as Béjar & Kahnemuyipour (2017).

impact the availability of the structure. In this paper, we will be focusing on offering an account of the agreement pattern observed in assumed identity copular sentences such as 3.

(3)   Assumed Identity Copula

     a.   **DP1**   DP2   **V**

         tum   mɛ̃   **ho**

         you   I   be.PRES.2S

         'You are me.' (You adopt my identity)

     b. *vo   tum   hɛ

         that   you   be.PRES.3S

         INTENDED: 'He/she is you.' (A third person adopts your identity)

In §2, we present the basic Hindi data for agreement in assumed identity copula sentences. Our primary focus is on person agreement which is where the features of both DPs in the structure impact judgments, but we also discuss the pattern for number and gender agreement briefly. In §3, we show that in identity copula sentences, finite T is involved in licensing DP2. In §4, we discuss the the possibility of applying to the Hindi-Urdu data an existing proposal extending the the Person Licensing Condition (Béjar & Rezac 2003) to identity copula sentences (Coon et al. 2017; Keine et al. 2019). But, as the data in §5 shows, such a licensing-based proposal will be unable to account for the role of feature realization – contexts where the agreement morphology does not overtly index the person features of DP1 (e.g., structures in the past tense), and contexts where the copula is omitted (e.g., in structures with gapping or right node raising) exhibit a different data pattern than contexts where the overt copula bears agreement morphology indexing the person features of DP1. In §6 , we show how the feature gluttony proposal of Coon & Keine (2020) is able to handle this particular data from Hindi-Urdu. However, as we discuss in §7, the licensing needs of DP2 make clear that the feature gluttony proposal is not sufficient in and of itself, and that an explicit account which handles licensing is required. We adopt an analysis which combines the licensing calculus of Kalin (2018) with the concept of feature gluttony (Coon & Keine 2020) for the Hindi-Urdu identity copula agreement data. Finally, we conclude the paper in §9.

2 Hindi-Urdu assumed identity sentences

In this section, we focus on agreement in copular sentences involving assumed identities in Hindi-Urdu. These sentences in Hindi-Urdu have the neutral word order DP1 DP2 V, with DP1 being the nominal who is adopting the new identity and DP2 being the nominal whose identity is being adopted. We will look at person agreement in detail to establish that the features of both DPs in the structure impact judgments in Hindi-Urdu, which we will locate in the broader context of assumed identity copular agreement in person crosslinguistically in §2.1. We make a return to Hindi-Urdu in §2.2, where we briefly discuss number and gender agreement in assumed-identity copulas.

Before looking at the agreement data, let us quickly point to the details of the syntactic structure of assumed-identity copular sentences that will be relevant for our analysis. Our primary assumption is that DP1 is higher in the structure than DP2 in assumed-identity copula sentences. The relative structural positions of the two DPs can be inferred by looking at data from binding in Hindi-Urdu. For anaphors such as *apna:,* the binder must c-command the bindee: see examples 4 and 5 (for a more detailed discussion see Dayal 1994; Bhatia & Poole 2016). Extending this diagnostic to the assumed-identity copula structures, the bound reading in 6 suggests that DP1 c-commands DP2. The unavailability of the bound reading in 7 suggests that DP2 does not c-command DP1[4].

(4)   S   O   V
        ramesh=ne   apni: beṭi:=ko   bula:ya:
        Ramesh=ERG   self.GEN.F daughter.F=DOM   call.PFV.DEF
        'Ramesh*ᵢ* called his*ᵢ* daughter.'

(5)   S   O   V
        apni: beṭi:=ne   ramesh=ko   bula:ya:
        self.GEN.F daughter.F=ERG   Ramesh=DOM   call.PFV.DEF
        Unavailable: 'His*ᵢ* daughter called Ramesh*ᵢ*.'

(6)   DP1   DP2   V
        ramesh apna: bha:i: hɛ
        Ramesh self.GEN.MS brother   be.PRES.3S
        'Ramesh*ᵢ* is his*ᵢ* brother.'

(7)   DP1   DP2   V
        apna: bha:i: ramesh hɛ
        self.GEN.MS brother Ramesh be.PRES.3S
        Unavailable: 'His*ᵢ* brother is Ramesh*ᵢ*.'

Turning to the agreement data, we use the convention in 8 to indicate the features of the two (pro)nominals: the features of DP1 are indicated first, preceding the '>' symbol and the features of DP2 are indicated second, following the '>' symbol.

(8) $F_{DP1} > F_{DP2}$

[3] will be used to denote third person (pro)nominals, [2] will be used to denote the second person, [1] will be used to denote the first person and [Participant] will be used as a cover term for first and second person nominals. So, [Participant] > [3] in this system will mean that DP1 has a participant feature while DP2 has a third person feature.

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[4] Note that 7 is only unacceptable with the coreference indicated. In sentence initial position, the anaphor 'apna:' can also be interpreted as referring to the speaker and listener jointly; on this reading the sentence is grammatical.

As the examples in 9 involving first person and second person DPs in assumed identity copulas show, both 1 > 2 and 2 > 1 configurations are well-formed in Hindi. The examples in 10 have a third person DP2 and they show that 1 > 3 and 2 > 3 configurations are also well-formed.

(9)   Context: A Bollywood movie where two people are swapping identities

a.   1 > 2
a:j = se,   **mɛ̃** tum **hũ:**
today = ABL, I   you   be.PRES.1S
'From today, I play you.'
UNAVAILABLE: 'You play me.'

b.   2 > 1
a:j = se,   **tum** mɛ̃ **ho**
today = ABL, you   I   be.PRES.2S
'From today, you play me.'
UNAVAILABLE: 'I play you.'

(10)   Context: Taking on the identity of a third person

a.   1 > 3
a:j = se,   **mɛ̃** si:ta: **hũ:**
today = ABL, I   Sita.FS be.PRES.1S
'From today, I play Sita.'
UNAVAILABLE: 'Sita plays me.'

b.   2 > 3
a:j = se,   **tum** gi:ta: **ho**
today = ABL, you   Gita.FS be.PRES.2S
'From today, you play Gita.'
UNAVAILABLE: 'Gita plays you.'

The Hindi-Urdu sentences above may surface with a different word order, given the availability of scrambling in the language. However, agreement disambiguates here: agreement in these sentences is consistently with the DP denoting the individual assuming the new role.

(11)   1 > 3
a:j = se,   si:ta: **mɛ̃ hũ:**
today = ABL, Sita.FS I   be.PRES.1S
'From today, I play Sita.'
UNAVAILABLE: 'Sita plays me.'

3 > 3 sentences are also well-formed in assumed identity sentences, 12. However, as example 13 indicates any configuration where DP1 is a third person, where DP1 is adopting the role of a

DP2 that is a first or second person entity, and where copular agreement is with the third person is ruled out: *3 > 1 and *3 > 2.

(12)   3 > 3

     a:j=se,   **si:ta:**   gi:ta: **hɛ**   aur   **gi:ta:**   si:ta: **hɛ**

     today=ABL, Sita.FS Gita.FS be.PRES.3S and Gita.FS Sita.FS be.PRES.3S

     'From today, Sita plays Gita and Gita plays Sita.'

(13)   *3 > 1/2

     a. *3 > 1

       *a:j=se,   vo   mɛ̃ hɛ

       today=ABL, that   I   be.PRES.3S

       INTENDED: 'From today, he/she plays me'.

     b. *3 > 1

       *a:j=se,   si:ta: mɛ̃ hɛ

       today=ABL, Sita.FS I   be.PRES.3S

       INTENDED: 'From today, Sita plays me.'

     c. *3 > 2

       *a:j=se,   vo   tum hɛ

       today=ABL, that you be.PRES.3S

       INTENDED: 'From today, he/she plays you'.

     d. *3 > 2

       *a:j=se,   si:ta: tum hɛ

       today=ABL, Sita.FS you be.PRES.3

       INTENDED: 'From today, Sita plays you.'

Note that a different verb, *ban* 'become', may be used instead of the be-copula in assumed identity contexts. The use of the this verb is well-formed under hierarchy obeying configurations such as 1 > 3, 1 > 2, 2 > 1, 2 > 3 and 3 > 3, like the be-copula. However, this verb will not salvage sentences with 3 > 1 or 3 > 2 configurations under the intended interpretation, 14.

(14)   a. 1 > 3

       a:j=se,   **mɛ̃** vo ban   gaya   **hũ:**

       today=ABL, I(M) that become go.PFV.MS be.PRES.1S

       INTENDED: 'From today, I have become him'.

     b. *3 > 1

       *a:j=se,   vo   mɛ̃ ban   gaya   hɛ

       today=ABL, that(M) I   become go.PFV.MS be.PRES.3S

       INTENDED: 'From today, he has become me'.

    c. *3 > 2
        *aːj꞊se,   vo   tum ban   gaya   hɛ
        today꞊ABL, that(M) you become go.PFV.MS be.PRES.3S
        INTENDED: 'From today, he has become you'.

Switching the agreement morphology on the *be*-copula to index the features of DP2, 15 will not save these sentences under the intended interpretation. The structure is simply ineffable in such cases.

(15)   a. *aːj꞊se,   vo   mɛ̃ hũː
           today꞊ABL, that I   be.PRES.1S
           INTENDED: 'From today, he/she plays me'.

      b. *aːj꞊se,   si:ta: mɛ̃ hũː
           today꞊ABL, Sita.FS I   be.PRES.1S
           INTENDED: 'From today, Sita plays me.'

      c. *aːj꞊se,   vo   tum ho
           today꞊ABL, that you be.PRES.2S
           INTENDED: 'From today, he/she plays you'.

      d. *aːj꞊se,   si:ta: tum ho
           today꞊ABL, Sita.FS you be.PRES.2S
           INTENDED: 'From today, Sita plays you.'

Default agreement is not available as a workaround for these instances of role-swapping. Since default agreement is morphologically identical to 3rd person masculine singular agreement, we illustrate this with the configuration 3-plural > 2-singular.

(16)   a. *aːj꞊se,   ve   log   tum hɛ̃
           today꞊ABL, those people you be.PRES.3P
           INTENDED: 'From today, they play you'.

      b. *aːj꞊se,   ve   log   tum hɛ
           today꞊ABL, those people you be.PRES.DEF
           INTENDED: 'From today, they play you'.

As already indicated in 11, given the possibility of scrambling, the strings in 15 themselves are grammatical with first or second person agreement but with the interpretation where these persons take on a role.

    It is not the case that the descriptions of role-swapping in 13 themselves are ineffable or pragmatically odd in Hindi-Urdu. Rather, a different strategy is utilized in such contexts, where instead of the identity copula a different verb *nibhaːna:* 'fulfil' is used along with the nominal

kirda:r 'role/character', and the genitive possessor of this nominal indicates whose identity is being adopted (i.e. DP2).

(17) a:j = se,   **vo**   mera: / tumha:ra: kirda:r **nibha:egi:**
      today = ABL, that(F) 1S.GEN   2S.GEN   role   play.FUT.FS
      'From today, she will play my/your role.'

The entire pattern for person agreement in Hindi-Urdu assumed identity copulas is summarized in **Table 1**, which points to the presence of person hierarchy effects in the language (akin to weak PCC effects in other languages, see Coon & Keine 2020 and references therein for a recent overview). For some combinations of arguments ([Participant] > [3]), which are hierarchy obeying, overt agreement with DP1 gives us well-formed sentences. In contrast, for other combinations of arguments ([3] > [Participant]), which are hierarchy violating, no overt agreement option gives rise to well-formedness[5].

DP1-features	DP2-features	Agreement-features on T
1	2	1
1	3	1
2	1	2
2	3	2
3	3	3
3	*1*	**3/*1*
3	*2*	**3/*2*

Table 1: Summary of Person Agreement in assumed identity copulas.

With this Hindi-Urdu pattern in mind, we will now discuss how Hindi-Urdu fits into the broader cross-linguistic typology for agreement in assumed identity copular contexts.

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[5] In this section, under **2**, we only consider the neutral second person pronoun *tum*. We set aside the non-honorific second person singular *tu:* and the honorific *a:p*, which do not display person-hierarchy effects.

  i. a. 3 > 2 (*tu:*)
      a:j = se,   vo   tu: hɛ
      today = ABL, that 2NH be.PRES.3S
      'From today, he/she plays you'.

    b. 3 > 2 (*a:p*)
      a:j = se,   vo   a:p   hɛ̃
      today = ABL, that 2H   be.PRES.3PL
      'From today, he/she plays you'.

2.1 Assumed identity copulas cross-linguistically

There are three broad classes of documented agreement patterns described in the literature in the context of assumed identity copular structures: (a) agreement is with DP1 and no person hierarchy effects are observed, e.g., in English (Heycock 2012: among others) and Persian (Béjar & Kahnemuyipour 2017); (b) agreement is with DP1 but is subject to person hierarchy effects, e.g., in German (Coon et al. 2017; Keine et al. 2019); (c) agreement is with the more *marked* DP, e.g., in Eastern Armenian (Béjar & Kahnemuyipour 2017).

In languages like English and Persian, agreement is consistently with DP1 in assumed identity sentences. All person combinations of DP1 and DP2 are well-formed. For English, this has been argued to be due to DP2 consistently having the accusative case-form which renders it unavailable for agreement, as noted by Heycock (2012). This is in keeping with the broader generalization that only nominative DPs can be agreed with in English (Bobaljik 2008). Agreement with DP1 in assumed identity copular contexts is, therefore, consistent with the agreement pattern in other contexts in English e.g. other finite intransitive/transitive/ditransitive verbs consistently agree with the subject DP.

(18) a. **I am** him
      b. **He is** me.

(19) PERSIAN (Béjar & Kahnemuyipour 2017: ex. 14b)
      Sabah man-Ø-**e**
      Sabah I-be-3s
      'Sabah is me.'

However, other languages show differences between copular and non-copular agreement. For example in German, like in Hindi-Urdu, we observe person hierarchy effects in assumed identity sentences but not in, say, regular transitive sentences. As the assumed identity sentences from German in 20 show, when DP1 has a Participant feature (here first person) and DP2 is a third person, agreement is with DP1 not DP2, and with this agreement the sentence is well-formed. However, when DP1 is a third person, and DP2 a Participant, neither agreement with DP1 nor DP2 is accepted. The unacceptable combinations of DP1 and DP2 in an assumed identity sentence can be characterized as being those that violate the 'Participant > 3' hierarchy.

(20) GERMAN (Coon et al. 2017)
      Person Hierarchy: Participant > 3 (acceptability judgements are for the indicated meaning)
      a. Participant > 3: ok
          Ich   **bin**/*ist er.
          I.NOM   am/is   he.NOM
          'I am him.'

b. 3 > Participant : *
   ???Er   ist/bin   ich.
   he.NOM is/am   I.NOM
   'He is me.'

Assumed identity sentences in German differ from English in that their well-formedness makes reference to the features of DP2 as well as DP1. This difference has been linked to case-differences as well: both DP1 and DP2 appear in their nominative forms in German unlike English where DP2 is in an accusative form.

German allows reordering of DPs via V2-related topicalization, so even with a different order of DPs with one Participant DP and one third person DP, agreement is only possible with the higher ranked person argument: the Participant, see (21). This sentence can only have the interpretation where the nominal with the Participant feature is the person who is adopting the role of a third person.

(21)   GERMAN: 1 > 3 (Keine et al. 2019: ex. 13)
       Er   **bin**   **ich**.
       he.NOM be.1S I.NOM
       'I am him.'
       (Unavailable: 'He is me.')

Uttering the intended meaning of *he is me*, is possible only through the use of a different strategy involving a non-pronominal form, 22.

(22)   GERMAN (Keine et al. 2019: ex. 11)
       Er ist meine Wenigkeit.
       he is my   negligibility
       'He is me.'

The class of Participants is not split up further in German, with first person and second person being at the same level on the person hierarchy. Both 1 > 2 and 2 > 1 combinations are well-formed, with agreement consistently targeting DP1 – the person adopting a new identity.

(23)   GERMAN
       a. 1 > 2 (Keine et al. 2019: fn. 5)
           Ich   **bin**/*bist du.
           I.NOM am/are   you.NOM
           'I am you.'

    b.   2 > 1 (Stefan Keine p.c.)

       Du   **bist**/*bin ich.

       you.NOM are/am   I.NOM

       'You are me.'

A third pattern is to have agreement with the most marked DP in a given structure. For example, in Eastern Armenian assumed identity sentences with one third person argument and one first person argument, copular agreement is consistently with the first person DP, irrespective of DP1/ DP2 status.

(24)   EASTERN ARMENIAN (Béjar & Kahnemuyipour 2017: ex. 49a,c)

    a.   Shadi-n   **yes ei**/*er

       Shadi-SP I   be.PST.1S/be.PST.3S

       'Shadi was me.'

    b.   **yes** Shadi-n **ei**

       I   Shadi-SP be.PST.1S

       'I was Shadi.'

Given this broader typology, it is clear that the Hindi-Urdu agreement pattern for person agreement is similar to that observed for German, where also person hierarchy effects surface in 3 > 2 and 3 > 1 combinations, but not in 1 > 2, 2 > 1 or 3 > 3 argument combinations. There seems, however, to be a difference in the strength of the person hierarchy effects in the two languages. Hierarchy violating structures are reported to have an intermediate status in German but are strongly ungrammatical in Hindi-Urdu.

2.2 Number and Gender in Hindi-Urdu

Before turning to further details of person agreement, note that while the Hindi-Urdu and German agreement patterns in identity copulas are similar they are not identical. 3 > 3 combinations in German require a more involved treatment due to observed Number hierarchy effects wherein plural is more marked than singular: Plural > Singular combinations are grammatical, while Singular > Plural combinations are ungrammatical.

    Unlike German though, evidence for a number markedness hierarchy is mixed in Hindi-Urdu. For example, in the examples in 25, the 3 > 3 combinations are well-formed for singular and plural third person combinations irrespective of which one corresponds to DP1 and which one to DP2. This suggests that no number hierarchy effect obtains for singular and plural nominals in Hindi-Urdu, which was the position taken in Bhatia (2019). This differs from the position taken in Coon & Keine (2020), who claim that the sentence in 26a with an S > P configuration is marked and therefore indicative of a number hierarchy effect. However, subsequent investigations of this

data-point[6] by us suggest the judgment for this data-point is variable – while some speakers find it marked, others finds it acceptable. Further, the use of a different lexical item *log* 'people', 26b, ameliorates the markedness of the structure to some degree.

(25)   a. S > P
        a:j = se,   **si:ta:** salma: aur gi:ta: hɛ
        today = ABL, Sita   Salma and Gita be.PRES.3S
        'From today, Sita plays Salma and Gita.'

     b P > S
        a:j = se,   **salma: aur gi:ta:** si:ta: **hɛ̃**
        today = ABL, Salma and Gita Sita be.PRES.3P
        'From today, Salma and Gita play Sita.'

     c. S > P
        a:j = se,   **si:ta:** (mã: aur ba:p) donõ **hɛ**
        today = ABL, Sita   mother and father both be.PRES.3S
        'From today, Sita plays both mother and father.'

     d. P > S
        a:j = se,   **(mã: aur ba:p) donõ** Sita **hɛ̃**
        today = ABL, mother and father both Sita be.PRES.3P
        'From today, both mother and father play Sita.'

(26)   a. S > P
        % is   na:Tak = mẽ, **ra:m** do pa:tr   **hɛ**
          this play = LOC, Ram two characters be.PRES.3S
        'In this play, Ram plays two characters.'

     b. S > P
      ?is   na:Tak = mẽ, **ra:m** do log   **hɛ**
       this play = LOC, Ram two people be.PRES.3S
       'In this play, Ram plays two people.'

Unlike person, and potentially number, we fail to observe any markedness hierarchy effects for gender in Hindi-Urdu, 27 and 28. Since the present tense copula does not inflect for gender in Hindi-Urdu, we use the past tense copula verb form and future copula verb form to illustrate this for gender.

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(27) F > M

    a. us   din＝se,   **salma:**   ramesh   **thi:**
        that day＝ABL, Salma(F) Ramesh(M) be.PST.FS
        'From that day onwards, Salma was Ramesh.'

    b. us   din＝se,   **salma:**   ramesh   **hogi:**
        that day＝ABL, Salma(F) Ramesh(M) be.FUT.3FS
        'From that day onwards, Salma will be Ramesh.'

(28) M > F

    a. us   din＝se,   **ramesh**   salma: **tha:**
        that day＝ABL, Ramesh(M) Salma:(F) be.PST.MS
        'From that day onwards, Ramesh was Salma.'

    b. us   din＝se,   **ramesh**   salma: **hoga:**
        that day＝ABL, Ramesh(M) Salma:(F) be.FUT.3MS
        'From that day onwards, Ramesh will be Salma.'

To summarize, the overall pattern for number agreement and gender agreement is different from person agreement, see **Table 2**. For gender, unlike person, the features of DP2 do not influence well-formedness. Number is also distinct from person in that evidence for a potential markedness hierarchy is at best mixed for number, while the evidence for a person markedness hierarchy is unequivocal. It is possible that more fine-grained empirical work might reveal hierarchies in the context of number agreement. But given the uncertain state of knowledge regarding the (non-)existence of number hierarchy effects, we will limit ourselves here to person hierarchy effects.

DP1-features	DP2-features	Agreement-features on T
S	S	S
S	P	%S
P	S	P
P	P	P
M	M	M
M	F	M
F	M	F
F	F	F

Table 2: Summary of Number and Gender Agreement in assumed identity copulas.

3 Licensing of the Copular DPs

In §2, we have established that the features of DP2 matter for the acceptability of assumed identity sentences[7]. It is instructive to compare Hindi-Urdu where the features of DP2 matter with English where they do not, as well as with German where they matter, albeit in a distinct manner from Hindi-Urdu. In English, DP2 surfaces in the accusative form *(I am her, She is me)*, while in Hindi-Urdu DP2 surfaces in the unmarked case form. The facts for German copular sentences are similar to Hindi-Urdu: the features of DP2 matter and both DP1 and DP2 are nominative (Coon et al. 2017). The point of difference is that unlike German, in Hindi-Urdu, T is responsible for licensing both DP1 and DP2. The evidence for T licensing DP2 in particular comes from infinitival clauses, which is what we focus on in this section.

In Hindi-Urdu infinitival clauses, for the most part, overt subjects must be overtly case-marked. Given the nominal nature of Hindi-Urdu infinitival clauses, this means that the subject obligatorily appears with genitive case.

(29)   a.   [mi:na:＝ka:/*mi:na: ṭi:na:＝se   ba:t karna:] zaru:ri: hɛ
              Mina＝GEN/Mina   Tina＝INST talk do.INF necessary be.PRES.DEF
              'Mina's talking to Tina is necessary.'

       b.   [mera:/*mɛ̃ ṭi:na:＝se   ba:t karna:] zaru:ri: hɛ
              I.GEN/I   Tina＝INST talk do.INF necessary be.PRES.DEF
              'My talking to Tina is necessary.'

This pattern can be explained by assuming that subject DPs need case-licensing. In finite clauses, finite T licenses bare subjects. However, finite T is unavailable as a licensor in infinitival clauses. So bare subjects are not possible. The only options available are covert (PRO) subjects and genitive subjects, which are licensed within the infinitival clause[8].

In contrast to subjects, the form of objects does not depend upon whether an object is the object of a finite clause or that of an infinitival clause. This shows that unlike subjects, objects do not depend on finite T for licensing.

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[7] From this point onwards, unless mentioned otherwise, the term *copular structures* is intended to refer to assumed-identity copular structures.

[8] The only exception is some 3rd person subjects of unaccusative infinitivals which can appear bare.

    i. [akhba:r/akhba:r＝ka: waqt＝pe a:na:]   zaru:ri: hɛ
        newspaper/newspaper＝GEN time＝on come.INF necessary be.PRES.DEF
        'The newspaper's coming on time is necessary.'

    This could be because 3rd person subjects of unaccusatives can undergo pseudo-incorporation (Dayal 2011) and thus be freed from the need to be case-licensed. It is also possible following Kalin's (2018) analysis of Differential Object Marking that only a subset of nominals need case-licensing. Under this conception, inanimate noun phrases like *akhba:r* 'newspaper' will not require case-licensing. We return to this proposal in §7.

(30)   a.   mi:na:＝ne **kita:b paṛhi:**
         Mina＝ERG book.F read.PFV.FS
         'Mina read a/the book.'

   b.   [mi:na:＝ka: kita:b paṛhna:] zaru:ri: hɛ
         Mina＝GEN book read.INF necessary be.PRES.DEF
         'Mina's reading a/the book is necessary.'

Turning now to infinitival DP1 DP2 copular sentences, we find a surprising restriction. Infinitival copular sentences where DP2 is not a pronoun or a proper name are freely available, 31. In addition to examples with copular *ho* 'be', here we also consider examples with *ban* 'become' as they pattern with copular *ho* 'be' in the aspects that are relevant here: licensing of DP2 and the influence of the features of DP2 on the wellformedness of the whole structure.

(31)   a.   [PRO adhya:pak hona:/banna:]   acchi: **ba:t   hɛ**
               teacher   be.INF/become.INF good.F thing.FS be.PRES.3S
         'It is a good thing to be/become a teacher.'

   b.   [mi:na:＝ka: adhya:pak hona:/banna:]   zaru:ri: hɛ
         Mina＝GEN teacher   be.INF/become.INF necessary be.PRES.DEF
         'It is necessary for Mina to be/become a teacher.'
         (note: no assumed identity interpretation is available)

In contrast to the examples in 31, infinitival copular sentences where DP2 is a 1st/2nd person pronoun are sharply ungrammatical, 32.

(32)   a.   *[PRO mɛ̃/tum hona:/banna:]   acchi: **ba:t   hɛ**
               I/you   be.INF/become.INF good.F thing.FS be.PRES.3S
         'It is a good thing to be/become me/you.'

   b.   *[mi:na:＝ka: mɛ̃/tum hona:/banna:]   zaru:ri: hɛ
         Mina＝GEN I/you   be.INF/become.INF necessary be.PRES.DEF
         'It is necessary for Mina to be/become me/you.'

Sentences with the third person pronoun *vo* are also informative in this regard. The third person pronoun *vo* can be used to refer to humans; it is also the distal demonstrative. When it is used to refer to humans, it is just as bad as 1st/2nd person pronouns in example 32, but when it refers to an inanimate object, 33, it is acceptable.

(33)   a.   [mi:na:＝ka: vo hona:/banna:]   zaru:ri: hɛ
         Mina＝GEN that be.INF/become.INF necessary be.PRES.DEF
         'It is necessary for Mina to be/become that.'
         UNAVAILABLE: 'It is necessary for Mina to be/become her/him.'

b. *[mi:na:=ka: vo (adhya:pak) hona:/banna:] zaru:ri: hɛ
    Mina=GEN that teacher.MS be.INF/become.INF necessary be.PRES.DEF
    INTENDED:'It is necessary for Mina to be/become that teacher.'

When DP2 is a proper name, the facts are a bit more mixed. There is some variation in judgements. We find all the examples degraded but the examples with *ban* 'become' are better than the ones with *ho* 'be', which feel completely out.

(34) a. [PRO vina: *hona:/?banna:] acchi: **ba:t hɛ**
          vi:na be.INF/become.INF good.F thing.FS be.PRES.3S
          'It is a good thing to be/become Vina.'

    b. [mi:na:=ka: vi:na: *hona:/?banna:] zaru:ri: hɛ
          Mina=GEN Vina be.INF/become.INF necessary be.PRES.DEF
          'It is necessary for Mina to be/become Vina.'

What this paradigm reveals is that unlike direct objects in a transitive structure, DP2 in a copular sentence is sensitive to whether it appears in a finite clauses or in a non-finite clause. Only a subset of the nominals that can appear as DP2 in a finite copular sentence can serve as DP2 in a non-finite clause. We take this sensitivity to diagnose a licensing need – the nominal that cannot serve as DP2 in a non-finite copular clause has licensing needs that are not met in a non-finite clause. Like subjects elsewhere, DP1 in a copular sentence needs case-licensing. So in a copular sentence, finite T is responsible for case-licensing two DPs: DP1 and DP2. In a non-finite copular sentence, DP1 can be PRO or be licensed via genitive case but if DP2 is the kind of nominal that needs licensing, it is out of luck as there is no suitable licensor around.

When there is no finite T available locally for licensing, only nominals that do not need licensing or those that can be pseudo-incorporated (Dayal 2011) can survive (as in 31). Sentences like 32 are ungrammatical as this path is unavailable to pronouns that refer to animate entities[9].

The nominals to which the pseudo-incorporation route is closed are the nominals that have definite animate reference: these are 1st and 2nd person pronouns, 3rd person pronouns when they refer to animates, and proper names of animates[10]. The pseudo-incorporation route is

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[9] Animacy and other properties of a DP influence the case licensing needs of the DP if it is an internal argument, i.e., the direct object of a transitive or the subject of an unaccusative. These features do not play a role when we are dealing with external arguments, which always need case-licensing.

[10] The status of other expressions with definite animate reference like *vo aurat* 'that woman', and *bagalvaale* '(the) neighbors' with respect to pseudo-incorporation is not clear to us. Note that Hindi-Urdu does not have a definite determiner; definiteness can be marked using a demonstrative or via a bare noun. Such expressions are not acceptable as bare subjects of infinitival unaccusatives, suggesting that they cannot be pseudo-incorporated. However they are of variable acceptability in the (34) frame, worse with *ho* 'be' than with *ban* 'become'. Moreoever when such nominals appear as direct objects of transitives, some but not all speakers permit them to appear without DOM.

available to 3rd person pronouns when they refer to inanimates, all indefinite nominals (animate as well as inanimate) and proper names of inanimates.

This contrast between definite animates and the rest surfaces in copular sentences (as we have seen in this section), but also in subjects of infinitival unaccusatives and direct objects of transitives. Definite animate nominals cannot appear as bare subjects of an infinitival unaccusative while other nominals can. And, definite animate nominals require differential object marking to appear as objects of transitives while other nominals do not. We illustrate this contrast using the 3rd person pronoun *vo*, which can refer both to animates and inanimates. The same contrast as applicable to proper name transitive objects is illustrated in 36. In the following environments, licensing by finite T is unavailable and consequently a bare *vo* cannot have definite animate reference.

(35) a. Copular Sentence:
[tumha:ra: vo hona:] zaru:ri: hɛ
you.GEN that be.INF necessary be.PRES.DEF
'It is necessary for you to be that.' (where *that* picks out some salient property identified via ostension)
Unavailable: 'It is necessary for you to be him/her.'

   b. Subject of infinitival unaccusative:
[vo hona:] zaru:ri: hɛ
that be.INF necessary be.PRS.3SG
'It is necessary for that to happen.'

   c. Object of transitive, without *-ko*
tum=ne **vo** uṭha:ya:
you=ERG that lift.PFV.3MS
'You lifted it/*him/*her.'

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i. a. subject of infinitival unaccusative
*[vo aurat waqt=pe a:-na:] zaru:ri: hɛ
  that woman time=on come-INF necessary be.PRS.3SG
intended: 'It is necessary for that woman to come on time.'

   b. DP2 in an infinitival assumed identity sentence
[mera: vo aurat *ho-na:/?ban-na:] zaru:ri: hɛ
me.GEN that woman be-INF/become-INF necessary be.PRS.3S
'It is necessary for me to be/become that woman.'

   c. necessity of DOM as direct object of transitive
(%??) us=ne   vo aurat dekh-i:
          that.OBL=ERG DEM woman see-PFV.F
'He/she saw that woman.'

We don't understand the nature of this variation at this point. We thank a reviewer for getting us to explore this.

d. Object of transitive, with *-ko*
tum=ne **us=ko** uṭha:ya:
you=ERG that=DOM lift.PFV.3MS
'You lifted it/him/her.'

(36) Proper Name Transitive Object
a. Inanimate
mi:na: ashṭa:dhya:yi: paṛh **rahi:** **hɛ**
Mina ashṭa:dhya:yi: read PROG.FS be.PRES.3S
'Mina is reading Ashtadhyayi.'

b. Animate
mi:na: si:ta:*(=ko) yahã bula: **rahi:** **hɛ**
Mina Sita=DOM here call PROG.FS be.PRES.3S
'Mina is calling Sita here.'

To sum up: in this section, we have shown that for Hindi-Urdu copular structures, not all DPs that can survive in finite clauses can survive in infinitival clause counterparts of the same. In particular, the restrictions on nominals serving as DP2 point to a dependence on finite T for licensing. There is a need for separate treatment of definite animates relative to other nominals in the language which holds both for copular verbs and ordinary transitive verbs. Any proposal for handling the copular agreement data in §2, would then also have to engage with the licensing requirements of the relevant nominals in the language.

In the next section, we go over existing proposals for agreement in identity copulas which merit evaluation given the specific agreement facts in Hindi-Urdu as presented in §2. This is followed by a discussion of the empirical challenges to these proposals posed by additional data related to feature realization in Hindi-Urdu, §5. In §6, we demonstrate how the Feature Gluttony proposal of Coon & Keine (2020) can be extended to Hindi-Urdu. We return to the role of licensing in §7 and in §8 we show how the agreement data and the licensing data can be handled by incorporating and adapting the licensing calculus of Kalin (2018) alongside Feature Gluttony (Coon & Keine 2020).

4 Some proposals for agreement in identity copulas

The challenging cases of agreement with assumed-identity copulas are the ones where features of both DP1 and DP2 are relevant for well-formedness, as in the case of Hindi-Urdu. If the issue was just that of accessing the features of DP2, skipping DP1, one could explore analyses where the relevant structures have a special syntax that inverts the underlying hierarchy between DP1 and DP2, see for example Heycock (2012)'s treatment of specificational sentences. Alternatively, we could explore structures for DP1 that make its features inaccessible as in Béjar & Kahnemuyipour's

(2017) treatment of Persian. But neither of these approaches allow the agreement probe to simultaneously access DP1 and DP2, which is what is needed here. Coon et al.'s (2017) / Keine et al.'s (2019) analysis of German and Béjar & Kahnemuyipour's (2017) analysis of Eastern Armenian allow for the crucial 'one probe, two goals' relation and we turn to them now as illustrative examples for better understanding the space of possible analyses associated with the copular agreement data cross-linguistically.

4.1 Coon, Keine and Wagner's initial proposal for German

This particular proposal by Coon et al. (2017) / Keine et al. (2019) is one where the licensing needs of the nominals are central to the analysis. Despite the fact that the authors themselves shift away from this analysis for German in later work (Coon & Keine 2020), where, instead, the needs of the goal are key, we go over this early stage proposal in detail here as it offers a clear illustration of how a licensing account *would work* specifically *for identity copula structures* as opposed to other agreement contexts.

In their analysis for German Coon et al. (2017) / Keine et al. (2019) hierarchy effects are attributed to the interaction of the ϕ-probe in T with two nominative nominals which are both accessible to this probe. They adopt two independently motivated ideas: Bejar & Rezac's (2003) *Person Licensing Condition* and Nevins's (2007) *Contiguous Agree*, which builds on the idea of relativization[11]. In addition Coon et al. (2017) / Keine et al. (2019) allow for the possibility of multiple agree.

(37)   Person Licensing Condition (Béjar & Rezac 2003: 53)
         An interpretable [+PARTICIPANT] feature must be licensed by entering into an Agree relation with a functional category.

(38)   Contiguous Agree (Nevins 2007: 291)
         For a relativization R of a feature F on a probe P, and x ∈ Domain(R(F)), ¬∃y, such that y > x and P > y and y ∉ Domain(R(F))
         "There can be no interveners between P and x that are not in the domain of relativization that includes x"

In structures with the Participant > 3 combination of DPs, the ϕ probe in T agrees with DP1[12] which satisfies the person licensing condition and obeys contiguous agree. DP2 is lower in the structure and does not require licensing. For the 3 > Participant combination, once T agrees

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[11] Relativization refers to the idea that 'syntagmatic processes may […] be restricted/relativized in their access to all values of a certain feature' (Nevins 2007). Being a condition on feature match, relativization allows for the possibility of having ϕ-agreement probes which can only agree with nominals with specific values of features while nominals which do not bear the particular feature will not be ignored by the relativized probe. See also Béjar & Rezac (2003), Béjar & Rezac (2009), and Preminger (2014), among others for further discussion of relativized probing.

[12] Labels of some nodes have been adapted for consistency, see Coon et al. (2017), examples 15–17 for original presentation.

with DP1, the person licensing condition still requires DP2 to be licensed. At the same time T cannot agree with DP2 since that would violate contiguous agree by allowing agreement across the less marked third person intervener. For the Participant > Participant combination (DPs at the same level in the person hierarchy), the ϕ probe in T agrees with both DP1 and DP2 in line with the person licensing condition and contiguous agree.

(39) Participant > 3

$T_{u\phi}$ [**DP1**$_{[+Part]}$ ...[...DP2$_{[-Part]}$]]]

(40) *3 > Participant

$T_{u\phi}$ [**DP1**$_{[-Part]}$ ...[...DP2$_{[+Part]}$]]]

(41) Participant > Participant

$T_{u\phi}$ [**DP1**$_{[+Part]}$ ...[...DP2$_{[+Part]}$]]]

At first glance it appears that this analysis may be extendable to Hindi-Urdu at least for the sentences presented so far since the Participant > 3 and Participant > Participant combinations are well-formed in Hindi-Urdu just as in German. In order to handle the Participant > Participant data in Hindi-Urdu, only the features of DP1 would have to be morphologically realized, similar to German.

The ungrammaticality of the 3 > Participant combination is also observed in Hindi-Urdu like German. Note, however, that the absence of gender hierarchy effects, and maybe also number hierarchy effects, may permit a simpler treatment of the 3 > 3 argument combinations in Hindi-Urdu relative to German. An extension of Coon et al. (2017) / Keine et al. (2019) to Hindi-Urdu would have the schematic form in 42. Here, the ϕ-probe on T will agree with DP1. Since DP2 is also a third person argument, it is not subject to the person licensing condition, and no agreement relationship needs to be established with this DP.

(42) 3 > 3 (Hindi)

$T_{u\phi}$ [**DP1**$_{[-Part]}$ ...[...DP2$_{[-Part]}$]]]

The Coon et al. (2017) / Keine et al. (2019) analysis has initial promise with respect to the licensing data we saw in §3. T here can enter into a relationship with both the DPs in a copular construction and hence an explanation for the fact that DP2 in an assumed identity copular sentence is dependent on finite T for licensing seems within reach. Indeed we could

use this analysis for structures where DP2 is a Participant (i.e. 1/2). But the licensing facts in Hindi-Urdu are more general and even 3rd person definite animates need licensing, which does not align with this analysis. A further point of difference is that unlike Hindi-Urdu, infinitival assumed identity sentences are grammatical in German, which further suggests that any analysis for German cannot be ported over as is given the different licensing requirement in Hindi-Urdu.

(43) GERMAN
    a. (Stefan Keine p.c.)
       Ich   zu sein   ist nicht einfach.
       I.NOM to be.INF is not   easy
       'It is not easy to be/play me.'

    b. (Keine et al. 2019: ex. 42)
       Er   scheint ich   zu sein.
       he.NOM seems I.NOM to be.INF
       'He seems to be me.'

Finally, as we show in §5, this proposal will also fail to account for additional copular agreement data where the absence/presence of person hierarchy effects appears to be modulated by the overt realization of agreement morphology. For these reasons, despite initial promise, Coon et al. (2017) / Keine et al. (2019) will not be suitable for the Hindi-Urdu data and for reasons articulated in Coon & Keine (2020), not for German either.

4.2 Bejar and Kahnemuyipour's proposal for Eastern Armenian

Here, we consider the Maximize agreement proposal for Eastern Armenian by Béjar & Kahnemuyipour (2017). Recall, that Eastern Armenian has overt copular agreement with the most marked feature in the structure, and disregards DP1/DP2 status in assumed identity sentences. Béjar & Kahnemuyipour (2017) show that DP2 agreement in this language arises whenever the probe with an articulated ϕ structure cannot find a full match in DP1. In a 3 > Participant structure, while the third person DP1 will match a nominal or deictic feature on the ϕ probe, this DP1 will not match the [Participant] feature on the probe. This will allow the ϕ probe to continue its search, and agree with DP2 which has the relevant feature.

(44) Maximize Agreement (Béjar & Kahnemuyipour 2017)
    T[Max (A,B)] ... DP1[A] ... DP2[B]

(45) 3 > 1 (Eastern Armenian)
    $T_{uPart,unominal}$ [DP1$_{[nominal]}$ ...[...DP2$_{[Part]}$]]]

This kind of system would predict that in Hindi-Urdu 3 > 1 or 3 > 2 structures, agreement with the first or second person feature of DP2 should be well-formed. Since agreement in Hindi-Urdu does not index the person feature of DP2 at all in assumed identity copulas, such an analysis can be ruled out for Hindi-Urdu.

5 The Role of Feature Realization

In the previous section, we explored the possibility that a Coon et al. (2017)/Keine et al. (2019) style account for person hierarchy effects in German with the three core ingredients of the Person Licensing Condition, Contiguous agree and Multiple agree is extendable to the Hindi-Urdu sentences data so far. However, as we will show in this section, the proposal as it stands can not capture some differences in the strength of the person hierarchy effects across different morphological agreement forms associated with assumed identity copulas in different tenses.

In contrast to 13, repeated below as 46, where the 3 > 1/2 combination was shown to be entirely ruled out in the present tense, the 3 > 1 combination has improved acceptability in the past tense, 47. This pattern extends to 3 > 2 configurations, see 48. In sum, in these cases both Participant > 3, and 3 > Participant combinations are relatively well-formed.

(46)　*3　> 1/2　　　[=13]

    a.　*a:j=se,　　vo　mɛ̃　hɛ

       today=ABL, that　I　be.PRES.3S

       INTENDED: 'From today, he/she plays me'.

    b.　*a:j=se,　　si:ta:　mɛ̃　hɛ

       today=ABL, Sita.FS　I　be.PRES.3S

       INTENDED: 'From today, Sita plays me.'

    c.　*a:j=se,　　vo　tum　hɛ

       today=ABL, that　you　be.PRES.3S

       INTENDED: 'From today, he/she plays you'.

    d.　*a:j=se,　　si:ta:　tum　hɛ

       today=ABL, Sita.FS　you　be.PRES.3

       INTENDED: 'From today, Sita plays you.'

(47)　Context: A Bollywood movie where I swapped identities with Sita.

    a.　1 > 3

       us　din=se,　**mɛ̃**　si:ta:　**tha:**

       that　day=ABL, I(M)　Sita.FS　be.PST.MS

       'From that day, I played Sita.'

       UNAVAILABLE: 'Sita played me.'

    b. 3 > 1

      ?us   din = se,   si:ta: mɛ̃   thi:

      that day = ABL, Sita.FS I(M) be.PST.FS

      'From that day, Sita played me'

      UNAVAILABLE: 'I played Sita.'

(48)   Context: A Bollywood movie where you swapped identities with Sita.

    a. 2 > 3

      us   din = se,   **tum**   si:ta: **the**

      that day = ABL, you(MP) Sita.FS be.PST.MP

      'From that day, you played Sita.'

      UNAVAILABLE: 'Sita played you.'

    b. 3 > 2

      ?us   din = se,   si:ta: tum   thi:

      that day = ABL, Sita.FS you(M) be.PST.FS

      'From that day, Sita played you'

      UNAVAILABLE: 'you played Sita.'

This contrast between 13/46 and the sentences presented here, 47 and 48, raises the question of how the past in Hindi-Urdu is different from the present, and further, why this difference impacts the strength of the person hierarchy effect across tenses. The morphological paradigms associated with each of the tenses provide a clue about the first question. In 49, we see the past tense forms and in 50 the present tense forms. The present tense and past tense auxiliaries realize overlapping but distinct feature combinations of the nominal that is being agreed with. The present tense auxiliary realizes person and number features but not gender, while the past tense auxiliary realizes number and gender, but not person. See Koul (2008), pp. 94 for further details about this contrast.

(49)   Past Auxiliary

	SG	PL
M	tha:	the
F	thi:	thĩ

(50)   Present Auxiliary

	SG	PL
1	hũ:	hɛ̃
2	hɛ*tu:*	ho*tum*
3	hɛ	hɛ̃

This suggests that the differential acceptability of 3 > Participant across tenses is conditioned on the morphological contrasts available in that tense. If this contrast between person indexing verbal agreement and only number-gender indexing verbal agreement is robust, it is predicted to extend to other contexts as well. This prediction is tested with future verbs which index person information in addition to number and gender – 3 > Participant configurations are predicted to be ill-formed here just like for the present tense and unlike the past tense. As illustrated below, this expectation is indeed borne out – while 3 > 1 is well-formed with past tense forms involving the verb *ban* 'become', 51, the same configuration is unacceptable in the future, 52.

(51)   a.   **mɛ̃**   si:ta: ban   **gaya:**   **tha:**
            I(M)   Sita.FS   become   go.PFV.MS   be.PST.MS
            'I became Sita.'
            UNAVAILABLE: 'Sita became me.'

       b.   **si:ta:**   mɛ̃   ban   **gayi:**   **thi:**
            Sita.FS   I(M)   become   go.PFV.FS   be.PST.FS
            'Sita became me.'
            UNAVAILABLE: 'I became Sita.'

(52)   a.   **mɛ̃**   si:ta: ban   **ja:ũ:ga:**
            I(M)   Sita.FS   become   go.FUT.1MS
            'I will become Sita.'
            UNAVAILABLE: 'Sita will become me.'

       b.   *si:ta: mɛ̃   ban   ja:egi:
            Sita.FS   I(M)   become   go.fut.FS
            INTENDED: 'Sita will become me.'

This amelioration of Person Hierarchy violations in certain tenses then calls into question a straightforward account of the Hindi-Urdu facts based primarily on the Person Licensing Condition. Incidentally, similar amelioration also takes place in German in the past tense, where the copula is syncretic between first and third person. With this tense form of the copula, 3 > 1 is acceptable in German as well. The problem is also recognized and handled in Coon & Keine (2020), see footnote 32 in their paper.

(53)   GERMAN (Michael Wagner p.c.)
       a.   1 > 3
            Ich   **war**   er.
            I   be.PST.1/3   him
            'I was him.'

   b. 3 > 1
      Er war   ich
      He be.PST.1/3 I
      'He was me.'

More generally, in Hindi-Urdu it seems that if the offending verb can be left unpronounced, the illformedness is ameliorated. For instance, even in the present tense where 3 > 1 is unacceptable with an overt copula, amelioration is possible in gapping contexts where the verb is left unpronounced. Such a deletion of the agreeing identity copula ensures that person agreement morphology does not need to be realized and the 3 > 1 configuration becomes acceptable.

(54)   3 > 1
    a. Without gapping: *
       *a:j = se,   mɛ̃ si:ta: hũ:,   aur si:ta: mɛ̃ hɛ
       today = ABL, I   Sita be.PRES.1S, and Sita I   be.PRES..3S
       'From today, I am Sita, and Sita is me.'

    b. With gapping: ok
       a:j = se,   mɛ̃ si:ta: hũ:,   aur si:ta: mɛ̃
       today = ABL, I   Sita be.PRES.1S, and Sita I   be.PRES..3S
       'From today, I am Sita, and Sita is me.'

Similar contrasts are also observed for coordinated sentences with and without right node raising, 55. When there is no right node raising and the copulas of both the conjoined clauses are realized overtly, the 3 > 1 combination leads to ungrammaticality. However, when the offending auxiliary form is not realized in the relevant clause due to right node raising, this ill-formedness is ameliorated[13].

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[13] There is one additional environment where the auxiliary can go missing – it involves the present tense auxiliary in the context of negation (Bhatt & Keine 2018). Omission of the auxiliary is fully acceptable in free-standing sentences in the presence of a participle. But in copular sentences, which lack a participle, omission of the auxiliary is degraded.

   i.   is   na:ṭak = mɛ̃ tum   Ramesh nahĩ: ??(ho)?
       this play = IN   you.PL Ramesh Neg be.PRS.2PL
       'Aren't/are you not Ramesh in this play?'

However, there is a clear contrast if we consider a 3 > 2 configuration. We know that the 3 > 2 configuration is ungrammatical with a present auxiliary but the omission of the auxiliary does not improve matters in the context of negation.

   ii. *is   na:ṭak = mɛ̃ Ramesh tum   nahĩ: (hɛ)?
       this play = IN   Ramesh you.PL Neg be.PRS.2PL
       Intended: 'Isn't/is Ramesh not you in this play?'

The fact that the 3 > 2 configuration remains unavailable even when the auxiliary is omitted is surprising given the account we are pursuing here. An observation in Bhatt & Keine (2018) might be helpful in delineating the cases in the main text where non-realization allows a hierarchy violating structure to surface and cases like these where non-realization does not help. Bhatt & Keine note that when the auxiliary alone is omitted, some of its features end up being realized on the participle. In contrast, in gapping and right node raising, the deletion seems to be more complete with no features surviving. We thank a reviewer for getting us to look at this.

(55) 3 > 1

    a.   without Right Node Raising: *

      *a:j=se   ravi mɛ̃ hɛ   aur mɛ̃ ravi hũ:.

      today=ABL Ravi I   be.PRES.3S and I   Ravi be.PRES.1S

      INTENDED: 'From today, Ravi is me and I am Ravi.'

    b.   with Right Node Raising: ok/?

      ?a:j=se   ravi mɛ̃ aur mɛ̃ ravi hũ:.

      today=ABL Ravi I   and I   Ravi be.PRES.1S

      'From today, Ravi is me and I am Ravi.'

To summarize, person hierarchy effects can be observed in Hindi-Urdu between a third person DP1 and a Participant DP2 in identity copulas. However, the extent of unacceptability for 3 > Participant configurations depends on the morphological realization of agreement. If agreement does not index person features, as in particular tense/aspect paradigms, or if the agreeing auxiliary is entirely absent as in gapping and right node raising structures, no ill-formedness arises even in 3 > Participant structures. This kind of pattern cannot be accounted for in a system like Coon et al. (2017) / Keine et al. (2019) which focuses solely on the needs of the person features of certain nominals to be licensed. This brings us back to the question of a syntactic explanation for the modulation of the person hierarchy effect by overt/absent agreement morphology in particular features.

Let us consider a potential explanation of this effect based on the work of Preminger (2019). Preminger discusses the fact that person case constraint effects only arise in cases where there is an overt reflex of the agreement operation in the form of visible agreement or clitic doubling. He takes this generalization as motivation for a picture which does not allow for invisible agreement. He proposes a modification of the Person Licensing condition from Béjar & Rezac (2009) – the addition to the original formulation is indicated in boldface in 56. Furthermore, he also lays down conditions for characterizing a DP as a canonical agreement target (57) and the conditions under which a learner can posit unvalued ϕ-features on a head (58).

(56)   Person Licensing Condition (Preminger 2019):

      A [Participant] feature on a DP **that is a canonical agreement target** must participate in a valuation relation.

(57)   A given DP x is a canonical ϕ-agreement target iff there is at least one ϕ-probe y such that:

    a. x and y are clausemates.

    b. x meets the case-discrimination requirements of y.

(58)   Triggers for Learner to posit unvalued ϕ-features on a head H^0:

    a.   overt morpho-phonological covariance between the exponents of the ϕ-features on H^0 and the exponents of ϕ-features on DP

    b.   long distance head movement of a D head to H^0.

If Participant features only need to be licensed when there is a *person probe* – given the logic of Preminger's proposal, one could say that the Hindi-Urdu past tense lacks a person probe. However, the gapping and right node raising cases would be harder to explain as attempting to extend Preminger's proposal to these cases would require us to posit that there are no ϕ-probes at all in these cases in the elliptical clause in Hindi-Urdu. Beyond Hindi-Urdu, the German syncretism cases would be harder still for a Preminger-style account – we would need to assume that 1/3 syncretism in the past corresponds to a lack of a person probe in just this situation in German, that is, the syncretism follows from the syntactic features.

For these reasons, in the next section, we will pursue an alternative and more promising possibility at least in terms of the past tense, gapping and right node raising data which comes from the system of *Feature Gluttony* outlined in Coon & Keine (2020)[14]. We will also return to the idea that a more truncated person probe may be warranted in some contexts in the next section. The question of how the licensing facts for Hindi-Urdu can be integrated with the copular agreement facts will be taken up in §7 and §8.

6 A Feature Gluttony Analysis for Hindi-Urdu identity copular agreement

The core insight of the Feature Gluttony proposal of Coon & Keine (2020) is that in certain structural configurations, one head can end up with too many features and that while this may not be fatal in and of itself, this can cause problems for subsequent steps in the syntactic derivation, for instance, in terms of interaction with the morphological realization. This approach offers a distinct perspective than one based on person licensing because it places the locus of ungrammaticality in 3 > Participant structures not on the needs of the nominals themselves, but rather on the features on the probe. Coon & Keine (2020) offer the following formulation of the operation Agree which builds upon segment-based Agree in Béjar & Rezac (2009).

(59) *Agree*
      A probe segment [uF] agrees with the closest accessible DP in its domain that bears [F]. If Agree is established, the hierarchy of segments containing [F] is copied over to the probe, valuing and thus removing [uF].

Probe segments probe independently and simultaneously. Copying is *coarse* i.e. it results in the copying of the entire feature geometry associated with the probe segment and not just the individual segment that is being probed. Applying this system to Hindi-Urdu, we propose that a person probe on Finite T in the present tense looks for **participant** features – this means that the probe has a **person** segment and a **participant** segment. The **person** segment is satisfied by any value of the person feature on the goal, while the **participant** segment is only satisfied by 1 or 2.

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[14] Thanks to Maria Privizentseva for an independent suggestion along these lines.

In a Participant > Participant structure or a Participant > 3 structure, both segments (**person**, **participant**) are satisfied by DP1 and the features of DP2 do not get copied on to T. This means that T only has one set of person and participant features to realize, the features of the subject, DP1. What about number/gender features? Let's assume that T also comes with a number/gender probe[15]. In our structures, this probe will always be satisfied by DP1 and its number and gender features, notated as NG_1 will be copied on to the probe.

(60) Participant > Participant
    a. … **T [Present] [1,NG$_1$]** [$_{PredP}$ **DP1 [1,NG$_1$]** [Pred DP2[2,NG$_2$]]]]
    b. … **T [Present] [2,NG$_1$]** [$_{PredP}$ **DP1 [2,NG$_1$]** [Pred DP2[1,NG$_2$]]]]

(61) Participant > 3
    a. … **T [Present] [1,NG$_1$]** [$_{PredP}$ **DP1 [1,NG$_1$]** [Pred DP2[3,NG$_2$]]]]
    b … **T [Present] [2,NG$_1$]** [$_{PredP}$ **DP1 [2,NG$_1$]** [Pred DP2[3,NG$_2$]]]]

In contrast, in 3 > Participant structures, T's need for Participant features is not satisfied by DP1. DP1 matches the **person** segment of T, thereby allowing its features to be copied to T. There is no Participant feature on DP1 so the **participant** segment on T continues probing and encounters DP2, which has Participant features. This leads to copying of the features of DP2 on to T. Having copied two sets of features to realize, T exemplifies a feature gluttony situation. The person features of DP1 and DP2 and the number/gender features of DP1 need to be realized. However in the singular, Hindi-Urdu lacks a morphological exponent for the combinations in (62)[16]. This leads to ill-formedness.

(62) 3 > Participant
    a. *… *T[Present][3,1,NG$_1$]* [$_{PredP}$ *DP1[3,NG$_1$]* [Pred DP2[1,NG$_2$]]]]
    b. *… *T[Present][3, 2,NG$_1$]* [$_{PredP}$ *DP1[3, NG$_1$]* [Pred DP2[2, NG$_2$]]]]

In 3 > 3 structures, the person segment on T finds person features on DP1 and therefore the features of DP1 are copied on to T. The participant segment on T probes but since neither DP1 or DP2 have Participant features, no additional features are copied onto T. T ends up with only one set of 3rd person features and no feature gluttony arises. The participant segment stays unvalued but this does not lead to a crash (cf. Preminger 2014).

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[15] We assume this for explicitness. An alternative would be to assume that number/gender features are part of the person feature structure and that copying of the person feature structure leads to copying of the number/gender features. If we go this route, we will need to say that in the past tense where there is no person inflection and no person-hierarchy effects, T only probes for unarticulated **person**. Gluttonous configurations never arise. A side note: with this alternative, we will not need the assumption about the feature representation of *tum* noted in footnote 16.

[16] We need to make sure that the familiar/rude 2nd person singular form *tuː* has a different feature specification from the neutral 2nd person singular form *tum*. We will reserve the feature **2** for *tum* and use **2NH** for *tuː*. See footnote 5 for details. Also see Sinha (2022).

(63) 3 > 3

    … **T [Present] [3,NG$_1$]** [$_{PredP}$ **DP1 [3,NG$_1$]** [Pred DP2[3,NG$_2$]]]]

What about the past tense where person is not realized? There are two options here in principle. We can say that T[Past] lacks a **participant** segment and has only a **person** segment. Then person-based gluttony will never arise in past contexts. But we could also entertain a uniform probe structure across tenses and derive the lack of gluttony from the lack of realization of person features in the past tense. We show below that the data does not allow us to choose between the two options. Let's consider the case where T[Past] has both a **person** and a **participant** segment. This means that (64a, b) below will involve gluttony. Note that the two DPs differ in both person and gender.

(64) 3 > Participant in the Past with an articulated person probe:

    a. [… **T [Past] [3, 1, FS]** [$_{PredP}$ **DP1 [3] [FS]** [Pred **DP2 [1] [MS]**]]]

        gi:ta: mɛ̃   thi:

        Gita.FS I.(MS) be.PST.FS

        'Gita played me.'

    b. [… **T [Past] [3, 2, FS]** [$_{PredP}$ **DP1 [3] [FS]** [Pred **DP2 [2] [MS]**]]]

        gi:ta: tum   thi:

        Gita.FS you.(MS) be.PST.FS

        'Gita played you.'

In this case, T ends up with two sets of conflicting person features but since number/gender probe separately, T ends up only with the number/gender features of DP1. Because person is not realized in the past tense, the person conflict has no effect on the realization. Only the number/gender features are realized and of those there is only one set. The examples are corrrectly predicted to be well-formed. Let us consider next how we do if we assume that the T[Past] probe only has a **person** segment and no **participant** segment.

(65) 3 > Participant in the Past with an unarticulated probe:

    a. [… **T [Past] [3, FS]** [$_{PredP}$ **DP1 [3] [FS]** [Pred DP2[1][MS]]]]

        gi:ta: mɛ̃   thi:

        Gita.FS I.(MS) be.PST.FS

        'Gita played me.'

    b. [… **T [Past] [3, FS]** [$_{PredP}$ **DP1 [3] [FS]** [Pred DP2[2][MS]]]]

        gi:ta: tum   thi:

        Gita.FS you.(MS) be.PST.FS

        'Gita played you.'

Since the probe is unarticulated in this case, there is no gluttony in (65a, b). DP1 controls agreement and the features of DP2 are irrelevant for well-formedness. Thus this route also correctly predicts well-formedness.

The situation is different in the gapping and right node raising structures in the present tense. Here we do have a gluttonous T head but since it is marked for non-pronunciation, the need to choose an overt exponence for the multiple person specifications is obviated. Thus, the Coon & Keine (2020) approach is able to handle both the person hierarchy effects and the amelioration of these effects in Hindi-Urdu.

7 Agreement and licensing – together but separate

The first proposal that we considered to handle person hierarchy effects in Hindi-Urdu was Coon et al. (2017) / Keine et al. (2019). An important aspect of this proposal was Béjar & Rezac's (2003) *Person Licensing Condition*. But the Coon et al. (2017) / Keine et al. (2019) proposal was unable to model the role of syncretism and realization. Both the person hierarchy effects and the role of syncretism and realization are handled elegantly by Coon & Keine's (2020) *Feature Gluttony* proposal. An important aspect of their proposal is that it makes unnecessary an appeal to any Person Licensing Condition, be it Béjar & Rezac (2003) unrestricted version or Preminger's (2019) contextual version. However the shift away from licensing in the *Feature Gluttony* proposal of Coon & Keine (2020) has the consequence that the proposal does not handle the licensing data discussed in §3 on its own. We believe that in order to successfully handle the Hindi-Urdu data, we need both feature gluttony and licensing.

What kind of licensing? Consider a Preminger (2019) style account, where the necessity of person licensing is contingent on the availability of an appropriate probe in Hindi-Urdu and the availability of the probe is contingent on the overtness of agreement. This dependence predicts that, in general, in those Hindi-Urdu clauses where there is no visible person agreement, Participant features would not need to be licensed at all. As is the case in many languages, infinitival clauses in Hindi-Urdu do not display person agreement. So one might expect that a DP that needs to be licensed in a finite clause might not need to be licensed in such an environment. However (66) shows that the licensing needs of a nominal are not modulated by the presence or absence of visible agreement. A DP with Participant features, which needs licensing, does not survive (66a), while an indefinite DP, which does not need licensing does (66b).

(66) a. *mi:ra:=ne [ravi=ka   mɛ̃ ban-na:]   ca:ha: tha:
         Mira=ERG   Ravi=GEN I   become-INF want.PFV.DEF be.PST.DEF
         'Mira had wanted Ravi to become me.'

      b. mi:ra:=ne [ravi=ka   adhya:pak ban-na:]   ca:ha: tha:
         Mira=ERG   Ravi=GEN teacher   become-INF want.PFV.DEF be.PST.DEF
         'Mira had wanted Ravi to become a teacher.'

The licensing needs of the lower DP in a copular construction do not go away just because there is no appropriate licensor in the local domain. We conclude that we need a formulation of Licensing where the licensing needs are not conditional on the presence of a licensor in the

local domain. This need is already recognized in Kalin (2018) who bases her argument on the impossibility of specific objects in perfective sentences in Senaya (pag 120, ex. 12). She notes that specific objects need licensing via agreement which is unavailable to objects in perfective sentences. The absence of a potential licenser does not eliminate the licensing need of the specific object.

8 How it all comes together

We bring this paper to a close by presenting an overview of the overall agreement and licensing system of Hindi-Urdu that incorporates the changes that we have needed to make in order to handle the copular agreement data. Prior approaches to Hindi-Urdu licensing and agreement (for example Mahajan 1990; Bhatt 2005) have made two commitments that we will depart from.

The first commitment is that an agreement probe stops probing once it finds a goal with accessible features. This commitment has been used to ensure that an agreement probe accesses at most one goal with accessible features. By this logic, in the case of subject agreement, the agreement probe finds accessible features on the subject and goes no further. Object agreement arises when the features on the subject are inaccessible due to overt case marking, but those on the object are accessible. Finally when features on both the subject and the object are inaccessible, default agreement arises. The second commitment that previous work has made is that a licensing head only licenses one DP in its domain. So there is a one to one relationship between licensing heads and licensed DPs in prior work. Our analysis of copular sentences departs from both these commitments.

Feature Gluttony arises as a result of a probe acquiring features from two goals. And we have shown that animate definite DP2s are good only in finite copular sentences. We have taken this to show that such DPs are case-licensed by finite T i.e. finite T case-licenses both the DPs in a copular sentence. We now show how we are still able to derive the case-licensing and agreement facts of Hindi-Urdu while departing from these commitments.

Let us start with case-licensing. Following Kalin's (2018) analysis of Differential Object Marking (cf. Aissen 2003), we divide nominals into two classes: nominals that need case-licensing and nominals that do not. Which nominals need case-licensing is subject to crosslinguistic variation. All nominals can be case-licensed; but in Hindi-Urdu, only animate definite nominals need to be. This distinction is notated as follows: nominals that need case-licensing come with a [uCase:__] feature, while other nominals come with a [Case:__] feature. A [Case:__] feature can remain unchecked but if a [uCase:__] feature is not checked by a case-licensing head, the derivation crashes.

Kalin (2018), page 151, footnote 20, notes that her system does not extend to Differential Object Marking (DOM) in Hindi-Urdu. The following is our extension of her system. We assume

that *v* in Hindi-Urdu does not assign structural case[17]. The following configurations are relevant for determining differential object marking. We do not indicate the case properties of the external argument as it is not relevant for the computation of DOM.

(67) a. [$_{vP}$ DP1 [$_{v'}$ v [$_{VP}$ V DP2[Case:—]]]
     b. [$_{vP}$ DP1 [$_{v'}$ v [$_{VP}$ V DP2[uCase:—]]]

DOM arises in this system as a response to the inability of *v* to license case. In (67a), this inability does not create a problem as DP2 does not need case-licensing. In (67b), however, DP2 needs case licensing and a case-licensing head is inserted at *v* for this purpose. Kalin suggests that this head is a non-thematic APPL head based on the fact that the realization of DOM case is homophonous with the realization of DAT case, =*ko*. It is possible that the addition of this head forces movement of DP2 (see Bhatt & Anagnostopoulou 1996) but we do not represent that here.

(68) DOM: insertion of APPL at v
     [$_{vP}$ DP1 [$_{v'}$ APPL+v [$_{VP}$ V DP2[~~uCase~~:APPL]]]

DOM is computed at the *vP* level and is not affected by the syntactic environment where the *vP* finds itself – as a result DOM takes place in both finite and non-finite clauses and also both in environments with ergative and non-ergative subjects. DOM is, however, sensitive to transitivity and is only available in transitive structures. We take it to be the case that the insertion of the non-thematic APPL head only takes place at *v*'s that can introduce an external argument. Thus DOM is not an option with unaccusatives, of which copular sentences are an instance.

Let us examine a range of structures to see how our system of case-licensing fares. We know from the existence of object agreement that finite T can probe the direct object and we know that DP2 in a copular sentence can be case-licensed by T. In terms of probing and case-licensing, we take this to show that as long as minimality is not violated, a case-licensing probe will case-license all the nominals in its domain[18]. Here are schematized variants of the attested configurations.

(69) a. Transitive: T licenses DP1 and DP2
        T [$_{vP}$ DP1 [$_{v'}$ v [$_{VP}$ V DP2]]]
        mi:na: akhba:r   paṛhegi:
        Mina.F newspaper.M read.FUT.3FS
        'Mina will read a/the newspaper.'

---

[17] Transitive *v* in perfective sentences has been argued to license inherent ergative to the DP in its specifier (Bhatt 2005; Legate 2008).

[18] In Deal's (2015) terminology, we could say that the case-licensing probe is insatiable. As we will see, it does not copy the features of all the nominal it case-licenses. Only the features of the closest nominal agreed with by any given feature segment are copied.

b. Ditransitive: T licenses DP1 and DP2, DP$_{dat}$ has inherent case

T [$_{vP}$ DP1 [$_{v'}$ v [$_{ApplP}$ DP$_{dat}$ Appl [$_{VP}$ V DP2]]]]

mi:na: tumhe akhba:r degi:

Mina.F you.DAT newspaper.M read.FUT.3FS

'Mina will give you a/the newspaper.'

c. Unaccusative: T licenses DP

T [$_{vP}$ v$_{unacc}$ [$_{VP}$ V DP]]

darwa:za: kal khulega:

door.MS tomorrow open.FUT.3MS

'The door will open tomorrow.'

d. Unaccusative with dative: T licenses DP, DP$_{dat}$ has inherent case

T [$_{vP}$ v$_{unacc}$ [$_{ApplP}$ DP$_{dat}$ Appl [$_{VP}$ V DP]]]

mujhe paise milẽge

me.DAT money.MP find.FUT.3MP

'I will get money.'

Recall that *v* does not license structural case. If an unaccusative structure contains two DPs, as is the case in the copular construction, schematized in 70, then T can case-license both DPs.

(70)   Copular construction:

T [$_{vP}$ v$_{unacc}$ [DP1 … DP2]]

a. tum mi:na: ho

you Mina be.PRES.2P

'You are Mina.'

b. mi:na: vo (adhya:pak) hɛ

Mina that teacher be.PRES.3SG

'Mina is that teacher/Mina is that one.'

The reader might be puzzled by our claim that T is case-licensing the direct object in (69a, b). After all, we noted that the direct object does not depend upon the presence of finite T for well-formedness or form. The relevant example is repeated below.

(71)   a. mi:na:=ne kita:b paṛhi:

Mina=ERG book.F read.PFV.FS

'Mina read a/the book.'

b. [mi:na:=ka: kita:b paṛhna:] zaru:ri: hɛ

Mina=GEN book.F read.INF necessary be.PRES.DEF

'Mina's reading a/the book is necessary.'

This is where the distinction between nominals that must be case-licensed ([uCase:—]) and nominals that do not need case-licensing ([Case:—]) comes in. In (71), the direct object is one

that does not need case-licensing – in (71a) it can be case-licensed, but it does not suffer from the absence of case-licensing in (71b). We need to look at configurations where the direct object is one that needs to be case-licensed, 72.

(72)   T[$_{vP}$ DP1 [$_{v'}$ v [$_{VP}$ V DP2[uCase:—]]]]

But as we have seen above in the discussion of DOM, this configuration triggers the insertion of non-thematic APPL on transitive *v* and DP2 is now licensed by APPL and not by T.

(73)   DOM: insertion of APPL at v
         [$_{vP}$ DP1 [$_{v'}$ APPL + v [$_{VP}$ V DP2[~~uCase~~:APPL]]]]

Insertion of non-thematic APPL is only possible at a transitive *v* and hence is not an option in a copular sentence. Therefore the absence of licensing becomes visible in this structural context. In the presence of finite T, DP2 is case-licensed and in its absence, DP2 is not. A non-finite structure is, therefore, viable only if DP2 does not need case-licensing – (74b) versus (74d).

(74)   a.   T[FIN] [$_{vP}$ v$_{unacc}$ [DP1[(u)Case:T] … DP2[~~uCase~~:T]]
         b.   *T[NONFIN] [$_{vP}$ v$_{unacc}$ [DP1 = GEN … **DP2 [uCase:—]]**
         c.   T[FIN] [$_{vP}$ v$_{unacc}$ [DP1[(u)Case:T] … DP2[~~uCase~~:T]]
         d.   T[NONFIN] [$_{vP}$ v$_{unacc}$ [DP1 = GEN … DP2[Case:—]]

We turn now to agreement. We have derived the full range of hierarchy effects found with Hindi-Urdu identity copula sentences using Feature Gluttony, the central insight of which is that a probe can enter into a relationship with more than one goal. This served us well with copular sentences but might this make trouble elsewhere? The answer we find is that it could very well have led to complications but that it does not because of DOM (Differential Object Marking).

The cases of copular agreement and object agreement are shown below. Object agreement arises when the features of the subject are inaccessible; this could be because the subject is ergative as shown below or because it has inherent dative case. Given that there is only one unmarked DP in such structures, the possibility of gluttony does not arise.

(75)   a.   Copular sentence: Gluttony
              T[AGR1,AGR2] [$_{vP}$ v$_{unacc}$ [**DP1 [AGR1]** … **DP2 [AGR2]**]]
              *mi:na: tum   ho/hɛ
              Mina   you.P be.PRES.2P/be.PRES.2/3.S
              Intended: 'Mina is you.'

         b.   Perfective Transitive: T agrees with DP2, Features of DP1$_{erg}$ are inaccessible
              T[AGR] [$_{vP}$ DP1$_{erg}$ [$_{v'}$ v [$_{VP}$ V **DP2 [AGR]**]]]
              ravi = ne   **kita:b paṛhi:**
              Ravi.M = ERG book.F read.PFV.FS
              'Ravi read a/the book.'

    c.   Perfective Diransitive: T agrees with DP, Features of DP$_{erg}$ are inaccessible

       T [AGR] [$_{vP}$ DP$_{erg}$ [$_{v'}$ v [$_{ApplP}$ DP$_{dat}$ Appl [$_{VP}$ V **DP [AGR]**]]]]

       ravi＝ne   mujhe   **kita:b** **di:**

       Ravi.M＝ERG me.DAT book.F give.PFV.FS

       'Ravi gave me a/the book.'

The case of subject agreement is more involved – in structures where both the subject and the object are unmarked for case, both have accessible features. All else being the same, we would expect such structures to also be gluttonous and to hence be subject to the kind of hierarchy effects we saw with copular sentences. But this is not what we find with such structures; the features of DP2 seem to not matter. Why is this the case?

(76)   Transitive, T agrees with DP1

       T [AGR1] [$_{vP}$ **DP1 [AGR1]** [$_{v'}$ v [$_{VP}$ V DP2[AGR2]]]]

       mi:na: akhba:r   **paṛhegi:**

       Mina.F newspaper.M read.FUT.3FS

       'Mina will read a/the newspaper.'

A closer examination reveals that the absence of hierarchy/gluttony effects here is what is predicted by our system. Recall that only the person probe is gluttonous in Hindi-Urdu and gluttony only arises in the configuration in 77. So we would expect this configuration of features to also give rise to gluttony in a transitive frame, 78.

(77)   T [v [DP$_1$[3] … DP$_2$[1/2]]

(78)   **T [3,1/2]** [$_{vP}$ **DP1 [3]** [$_{v'}$ v [$_{VP}$ V **DP2 [1/2]**]]]

The trouble is we will never know. 1st and 2nd person pronouns are always [uCase:—] and this forces the insertion of non-thematic APPL leading to differential object marking. This makes their features inaccessible. So the structure that surfaces is the following, in which the features of DP2 are inaccessible and no gluttony arises.

(79)   **T [3]** [$_{vP}$ **DP1 [3]** [$_{v'}$ v＋APPL [$_{VP}$ V *[$_{KP}$ DP2[1/2] K]*]]]

       vo   tum＝ko/*tum **ḍã:ṭega:**

       3MS you＝DOM/you scold.FUT.3MS

       'He will scold you.'

From the perspective of our analysis, it is rather handy that Hindi-Urdu has Differential Object Marking. If it did not, such structures would have been ineffable in the same way that *he is me* is ineffable in Hindi-Urdu.

    To sum up, our proposal has the following link between case and agreement: the domain of case-licensing is wider than the domain of agreement. Finite T case-licenses all the active DPs in

its domain (i.e. the DPs with unvalued case features) but it does not necessarily agree with all the DPs in its domain. Agreement is constrained by the gluttonous needs of the agreement probe on T. An example of this is the 1 > 2 copular configuration: here we know that finite T case-licenses both arguments but only agrees with the higher one as the higher one fully satisfies the needs of the agreement probe on T.

9 Conclusion

We have demonstrated the existence of person hierarchy effects in assumed identity copular sentences in Hindi-Urdu. Our analysis of these effects is couched in terms of Coon & Keine's (2020) Feature Gluttony proposal. The hierarchy effects arise as a result of an articulated agreement probe that is looking for [person] and [participant] features, and acquiring features of more than one DP. Certain combinations of features are ungrammatical; the relevant structures are ineffable with assumed identity copulas. The source of the ungrammaticality is the inability of the morphology to realize the agreement features corresponding to these feature combinations. If in a certain context, the conflicting features do not have an overt realization or if the relevant head with the conflicting features does not need to be overtly realized, the problem disappears and the overall structure is acceptable. In addition, we have also demonstrated that there are cases where both nominals in an assumed identity copular structure need to be licensed by finite T; the infinitival counterparts of these structures are ungrammatical. Feature Gluttony has rendered appeals to licensing unnecessary in many instances but we submit that there remain at least some instances where we still need licensing: one identified by Kalin (2018) involving the impossibility in Senaya of specific objects in perfective sentences and, another being assumed identity structures in Hindi-Urdu.

Abbreviations

1 = first person, 2 = second person, 3 = third person, ABL = ablative, ACC = accusative, DAT = dative, DEF = default agreement, DOM = differential object marking, ERG = ergative, F = feminine, FUT = future, GEN = genitive, INF = infinitive, M = masculine, NOM = nominative, OBL = oblique, P = plural, PFV = perfective, PRES = present, PST = past, S = singular, sp = specific.

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Competing Interests

The authors have no competing interests to declare.

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