Andrew Murphy*
Dative intervention is a gang effect

Abstract: This paper addresses two restrictions regarding agreement with nominative arguments in Icelandic DAT-NOM constructions. The first is the reported asymmetry in intervention effects in mono-clausal versus bi-clausal environments. The second regards the well-known Person Restriction that prohibits agreement with non-3rd person arguments. It is argued that both of these phenomena can be viewed as instances of cumulative constraint interaction, where less important constraints in the grammar 'gang up' to block some higher constraint. In order to account for this, I adopt a model of syntax with both weighted constraints and serial optimization that is known as *Serial Harmonic Grammar* in the phonological literature. It will be demonstrated that such a system can offer a more principled analysis of the construction-specific nature of the aforementioned phenomena.

Keywords: agreement, dative intervention, Icelandic, person restriction

1 Introduction

Icelandic has featured prominently in the discussion of syntactic agreement and its relation to case, due to the fact that it shows that φ-agreement uniformly targets nominative-marked arguments regardless of grammatical function. Of particular interest have been so-called DAT-NOM constructions involving a 'quirky' dative subject and a nominative object. While φ-agreement normally targets the nominative, there are the following two contexts in which this is blocked. For some speakers, agreement with the nominative has been claimed to be sensitive to the position of the dative argument. If it is in clause-initial position, then we find plural agreement with the nominative (1a), however, this option disappears when the dative occupies a low, linearly-intervening position (1b) .

(1) a. $Mér_1$ virðast t_1 [hestarnir   vera seinir]
          me.DAT seem.3PL   horses.NOM be   slow
          'It seems to me that the horses are slow'

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b. *Það virðast *einhverjum manni* [hestarnir vera seinir]
   there seem.3PL some man.DAT horses.NOM be slow
   'It seems to some man that the horses are slow.'

(Holmberg and Hróarsdóttir 2003: 998)

From a theoretical perspective, this pattern of 'defective intervention' is particularly challenging, since the dative argument blocks agreement while itself not being a viable goal. Furthermore, it has been argued that intervention of this kind is restricted to bi-clausal environments (e.g. Nomura 2005; Broekhuis 2008; Bobaljik 2008; Preminger 2014).

Another widely reported constraint on agreement in DAT-NOM constructions is the so-called *Person Restriction*. This refers to the fact that agreement with nominative objects is only possible with non-local persons (i.e. 3rd person) (2a). Agreement with a nominative argument is ungrammatical if it is either 1st or 2nd person (2b).

(2) a. Henni_1 *mundu* pá virðast t_1 [Þeir vera hérna]
   her.DAT would.3PL then seem they.NOM.3PL be here
   'It would then seem to her that they are here.'

b. *Henni_1 *munduð* pá virðast t_1 [Þið vera hérna]
   her.DAT would.2PL then seem you.NOM.2PL be here
   'It would then seem to her that you are here.'

(Sigurðsson 2004: 72)

This paper argues that these restrictions are examples of *cumulative effects* in syntax. The central idea will be that there exist constraints in a language that allow for particular processes independently, but lead to ungrammaticality when a given Agree dependency violates both simultaneously. In the case of dative intervention, it will be shown that there are legitimate instances where principles of both Minimality and Locality are not respected, but simultaneous flouting of both constraints leads to a breakdown in agreement. Furthermore, the Person Restriction will be explained as the cumulative interaction of general economy constraints punishing agreement and the low-ranked markedness hierarchy for person responsible for determining the form of default agreement.

In order to be able to formulate such an analysis, I adopt a derivational, constraint-based version of Minimalism that involves weighted constraints. It will be argued this intuition can be captured in an OT-variant of Minimalism involving weighted constraints (*Harmonic Minimalism*). In phonology, this is a common way of modelling so-called 'cumulative constraint interactions' in frameworks such as (Serial) Harmonic Grammar (e.g. Legendre et al. 1990; Pater 2009, 2012,

2016; Potts et al. 2010; Kimper 2011; Ryan 2017). We will see that the puzzling agreement restrictions we find in Icelandic DAT-NOM constructions fall out naturally from a system that allows for *gang effects*, that is, for individually less important, lower-ranked constraints to 'gang up' against a higher constraint in certain contexts. The extensive degree of variation that we find with agreement with nominatives in Icelandic can also be captured by adopting a stochastic approach (e.g. Noisy HG) to variation between possible 'grammars', i.e. constraint rankings.

The paper is structure as follows. Section 2 presents the two central phenomena that this paper will be concerned with, dative intervention and the Person Restriction. Some previous accounts to these problems are reviewed in Section 3. The framework of (Serial) Harmonic Grammar is briefly presented in Section 4, before Section 5 goes on to provide a cumulative analysis of dative intervention in Icelandic. Dialectal variation and the Person Restriction are both addressed in Section 6 and Section 7 then concludes.

2 Two agreement puzzles in Icelandic DAT-NOM constructions

As we saw above, certain verbs in Icelandic require subjects in the dative case. Although these 'quirky', dative subjects are genuine syntactic subjects, as shown by Thráinsson (1979), Sigurðsson (1989), Zaenen et al. (1985) and Jónsson (2003) among others, they cannot control agreement on the verb. Consider the minimal pair in (3).

(3) a. Strákarnir leidd-ust/*-ist
         boys.NOM walked.hand.in.hand-3PL/*-3SG
         'The boys walked (hand-in-hand).'
     b. Strákunum leidd-ist/*-ust
         boys.DAT   bored-3SG/*-3PL
         'The boys were bored.'   (Sigurðsson 1996: 1)

The verb *leiðast* is ambiguous. With a nominative subject, as in (3a), it means 'to walk (hand-in-hand)' and we observe that the verb agrees with the subject. When the verb takes a dative subject, it receives a different interpretation, namely 'to be bored' (3b). The important thing to note here is that plural agreement with the subject is blocked if the subject bears dative case. As in many languages, quirky subjects are not potential targets for agreement.

Quirky subjects also occur in so-called DAT-NOM constructions, where the direct object is marked with nominative (4) (see e.g. Sigurðsson 1991, 1992;

Taraldsen 1995; Harley 1995; Jónsson 1996; Boeckx 2000; Hrafnbjargarson 2001; Árnadóttir and Sigurðsson 2012; Ussery 2015). In (4), the verb agrees with nominative argument, despite its status as a syntactic object (cf. Harley 1995; Jónsson 1996).

(4) Henni   likuðu   hestarnir.
     her.DAT liked.3PL horses.NOM
     'She liked the horses.'   (Holmberg and Hróarsdóttir 2003: 999)

This serves to show that dative arguments do not constitute agreement targets in Icelandic. However, Watanabe (1993: 417ff.) and Schütze (1997: 107ff.) noticed that dative subjects can, under certain conditions, disrupt agreement with a nominative object. For some speakers, there is a contrast between (5a) and (5b), which both involve a raising verb of the *seem*-type and a dative experiencer. If the dative DP is raised past the verb, then agreement pertains between the matrix verb and nominative object in the embedded TP (5a). However, if an expletive occupies clause-initial position, then the dative linearly intervenes between the probe and the goal, preventing plural agreement with the lower nominative (5b).

(5) a. *Mér*$_1$ virðast   t$_1$ [$_{TP}$ hestarnir   vera seinir]
         me.DAT seem.3PL   horses.NOM be   slow
         'It seems to me that the horses are slow'

     b. *Það   virðast   *einhverjum manni*   [$_{TP}$ hestarnir   vera seinir]
         there seem.3PL   some   man.DAT   horses.NOM be   slow
         'It seems to some man that the horses are slow.'
                                                 (Holmberg and Hróarsdóttir 2003: 998)

What is particularly challenging about this is that, although the dative argument is clearly not itself a viable target for agreement (cf. (3b)), it still triggers intervention. This is what Preminger (2014) calls the *Dative Paradox*, given in (6) (cf. McGinnis 1998; Holmberg and Hróarsdóttir 2003; Rezac 2004; Nomura 2005; Hiraiwa 2005; Sigurðsson & Holmberg 2008; Ussery 2009; Kučerová 2016).

(6) *Dative Paradox* (Preminger 2014: 133):
     a. Datives behave as relevant goals for the locality of φ-probing.
     b. Datives are not themselves viable targets for φ-probing.

Ordinarily, one would expect a probing head to simply ignore inaccessible intervening goals, but in this case it seems to block agreement altogether. Chomsky (2000: 123) calls this phenomenon *defective intervention*, since the dative DP

intervenes for Agree while not bearing the relevant active features to do so. However, this does little more than give the problem a name, rather than providing any particular explanation for its existence.

2.1 Dative intervention

The dative intervention paradigm shown in (5) is one of the major phenomena that this paper will focus on. As we just saw, for what Sigurðsson & Holmberg (2008) call 'Dialect B speakers', there is a contrast in the availability of plural agreement depending on whether the dative experiencer moves to clause-initial position or not. Agreement is possible if the dative DP moves to clause-initial position (5a), if an expletive occupies initial position, however, the dative remains low and linearly intervenes to block agreement (5b). While this has been used to argue for a theoretical concept such as *defective intervention* by an ilicit goal (Chomsky 2000, 2001), there are a number of complications. First, as has been pointed out by Nomura (2005: 92), Koopman (2006: 177f.), Alexiadou and Anagnostopoulou (2006: 50), Kučerova (2007: 272f.), Broekhuis (2008: 138), Bobaljik (2008: 320f.) and Kučerová (2016: 51), it is not the case that a linearly intervening dative always triggers intervention. Consider, for example, the following quote from Bobaljik (2008):

> Contrary to the view that has gained currency in narrowly Minimalist proposals [. . .] there is no evidence that defective intervention effects are a general reflection of the configuration [EXPL V DAT NOM]. Rather, such effects arise only in bi-clausal constructions.
>
> (Bobaljik 2008: 320)

As these authors point out, whereas the typical dative intervention examples involve a raising configuration with multiple TPs, intervention effects do not seem to occur in mono-clausal configurations in which the dative and nominative are co-arguments of the same verb. This holds for both transitive experiencer verbs (7a) and passives of double object constructions (7b,c).

(7)　a.　Það líkuðu [$_{vP}$ *einhverjum* 　[$_{VP}$ Þessir sokkar 　]]
　　　　　there liked.PL 　somebody.DAT 　　these socks.NOM
　　　　　'Somebody liked these socks'

　　b.　Það voru 　[$_{vP}$ *einhverjum* 　[$_{VP}$ gefnir Þessir sokkar 　]]
　　　　　there were.PL 　somebody.DAT 　　given these socks.NOM
　　　　　'Somebody was given the socks'　　　　　　　(Jónsson 1996: 153)

c. Það voru [$_{vP}$ *konungi* [$_{VP}$ gefnar ambáttir] í vettur]
  there were.PL king.DAT given slaves.NOM in winter
  'There was a king given maidservants this winter.'

(Zaenen et al. 1985: 112)

Another complication is that the sheer extent of apparent inter- and intra-speaker variation with regard to agreement with nominatives in DAT-NOM constructions (Árnadóttir and Sigurðsson 2012; Jónsson 2016; Ussery 2017) means that intervention effects are rarely absolute, with most speakers allowing nominative agreement, albeit to different degrees (see e.g. Jónsson 2016). The question is how to deal with this variation. One option is to admit defeat and conclude that the Icelandic facts are simply too intricate to inform the theory of grammar. The alternative is to try to identify what the basic grammars of agreement may be and develop a suitable theory to account for variation between them. In this paper, I wish to pursue the latter approach. In particular, we can assume a basic division into three 'core' grammars following the idealized classification in Sigurðsson & Holmberg (2008), given in (8). In the Icelandic A grammar, agreement is always possible with a nominative, whereas Icelandic C does not permit agreement with the nominative argument. The other grammar, Icelandic B, would then show intervention effects only in bi-clausal contexts and with a linearly intervening dative. Across speakers, there would be stochastic variation between how often a particular grammar is used (see Section 6.3 for further discussion).

(8) *Core grammars of Icelandic*:

GRAMMAR	EXPL verb DAT NOM	EXPL verb DAT [$_{TP}$ NOM	DAT verb t$_{DAT}$ [$_{TP}$ NOM
Icelandic A	✓	✓	✓
Icelandic B	✓	✗	✓
Icelandic C	✗	✗	✗

Can we still find evidence for intervention despite this complicated picture? In the production study reported in Ussery (2009), there was a noticeable difference in the rate of plural agreement across an intervening dative in mono-clausal constructions (36%) vs. bi-clausal environments (18%) (9). A comparable reduction is not found when the dative does not linearly intervene.

(9) *Plural agreement in Icelandic DAT-NOM constructions* (Ussery 2009: 120):

WORD ORDER	RATE OF AGREEMENT	
	mono-clausal	*bi-clausal*
DAT-verb-NOM.PL	47%	36%
EXPL-verb-DAT-NOM.PL	36%	18%

The comparatively greater drop in plural agreement in bi-clausal intervening contexts compared to mono-clausal constructions makes sense, however, if there are indeed speakers who only disallow agreement across a dative in bi-clausal contexts, i.e. speakers who are using the grammar of Icelandic B.[1] It is important to note that this difference could not simply be attributed to the fact that, for some speakers, default agreement is less available in monoclausal environments (see e.g. Boeckx 2009). If this were the explanation, then one would expect the same decrease in the rate of plural agreement in bi-clausal contexts regardless of intervention. However, this is not what we find. The non-intervening condition shows a decrease of only around 25%, compared to the intervening condition where plural agreement was produced 50% less often.

On the other hand, Jónsson (2016: 73) presents a number of large-scale surveys conducted with speakers of Icelandic. In these surveys, it is claimed that no evidence for dative intervention was found. Jónsson (2016) reports that in the following example, the plural agreeing form was chosen by participants 36.1% of the time. From this comparatively high rate of agreement, it is concluded that speakers did not seem to show dative intervention effects.

(10)   Það virðast samt *mörgum* Þessir   bílar   vera mjög
        EXPL seem.PL still   many.DAT these.NOM.PL cars.NOM.PL be   very
        eftisóknarverðir
        attractive
        'These cars seem to many to be attractive'

<div align="right">(Jónsson 2016: 66)</div>

The problem is that this is the only sentence across the surveys that contained a bi-clausal intervention context and it uses the dative plural quantifier *mörgum* ('many'). Recently, Kučerová (2016) has claimed that the type of quantified NP has an effect on whether a dative blocks agreement or not. As (11) shows, quantifiers such as *mörgum X* ('many X') were reported to permit agreement in bi-clausal contexts (11a), whereas others such as *fáum X* ('few X') did block agreement (11b) for the relevant speakers.

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1 Sigurðsson & Holmberg do not report a mono-clausal/bi-clausal distinction for speakers sensitive to linear intervention (Icelandic B), however it is important to note that this may be in part due to their methodology. As they point out (Sigurðsson & Holmberg 2008: 273,fn.3), their data are based on two surveys: one on mono-clausal DAT-NOM constructions conducted in 1990, and another on bi-clausal constructions conducted in 2005. They had a total of 9 informants, however, only 4 participated in the both studies. This means that they may not have been able to detect an effect of bi-clausality on agreement, given such a small sample.

(11) a. Það finnast *mörgum*   *stúdentum*   tölvurnar   ljótar
          EXPL find.PL many.DAT.PL students.DAT.PL computers.NOM ugly.NOM
          'Few children find the computers ugly.'

      b. *Það finnast *fáum*   *börnum*   tölvurnar   ljótar
          EXPL find.PL few.DAT.PL children.DAT.PL computers.NOM ugly.NOM
          'Few children find the computers ugly.'

                                                    (Kučerová 2016: 54)

In the survey item in (10), a transparent quantifier was used, which means that the lack of significant reduction in agreement was likely affected by this factor.

    With all of this in mind, it seems we can still maintain that there is a grammar involving dative intervention, as has been claimed in theoretical literature on Icelandic agreement. However, to the extent to which we can identify dative intervention, it seems to only hold in bi-clausal contexts, as suggested by Ussery's study. This gives rise to the following puzzle that will be addressed in this paper (also see Nomura 2005; Bobaljik 2008; Preminger 2014):

(12) *The domain puzzle*:
      In Icelandic B, dative DPs intervene for agreement in bi-clausal, but not in mono-clausal configurations.

It is also important to mention that intervention effects have been reported in what would typically be classed as small clause complements (13) (e.g. Holmberg and Hróarsdóttir 2003; Sigurðsson & Holmberg 2008).

(13) a. *Það finnast *einhverjum stúdent*   [_SC tölvurnar   ljótar]
          EXPL find.PL some   student.DAT   computer.NOM.PL ugly
          'Some student finds the computers ugly.'
                                        (Holmberg and Hróarsdóttir 2003: 1000)

      b. *Það finnast [_vP *hverjum* *ketti*   [_SC mýsnar   góðar]]
          EXPL find.PL   each.DAT cat.DAT   mice.NOM.PL tasty
          'Each cat finds the mice tasty.'

                                                    (Kučerová 2016: 56f.)

Here, we are not dealing with the subject of the non-finite clausal complement of *seem*, but rather a small clause complement. Nevertheless, it will be argued in Section 5 that these two contexts can be unified as 'bi-clausal' in that they constitute two distinct instances predication.

2.2 The person restriction

The second puzzle to be addressed in this paper concerns the Person Restriction, given in (14) (see e.g. Sigurðsson 1991, 1996; Taraldsen 1995; Boeckx 1998, 2000; Hrafnbjargarson 2001; Anagnostopoulou 2003, 2005; D'Alessandro 2003).

(14)   *Icelandic Person Restriction* (Sigurðsson & Holmberg 2008: 254):
        In DAT-NOM constructions, only 3rd person NOM may control agreement.

The restriction in (14) describes another quirk of DAT-NOM constructions, namely that agreement with the nominative can only ever be third person. This restriction can be shown to hold for both transitive experiencer verbs (15) and passives of ditransitives (16).

(15)   a. *Henni líkuðum við.
            her.DAT liked.1PL we.NOM
            'She liked us.'
        b. *Henni líkaðir Þú.
            her.DAT liked.2SG you.NOM
            'She liked you.'
        c. Henni líkuðu Þeir.
            her.DAT liked.3PL they.NOM
            'She liked them.'   (Sigurðsson 1996)

(16)   a. *Henni vorum sýndir við.
            her.DAT were.1PL shown we.NOM
            'We were shown to her.'
        b. *Henni voruð sýndir Þið.
            her.DAT were.2PL shown you.NOM
            'You (pl.) were shown to her.'
        c. Henni voru sýndir Þeir.
            her.DAT were.3PL shown they.NOM
            'They were shown to her.'   (Sigurðsson & Holmberg 2008: 254)

The particularly challenging aspect of this restriction is to explain why this restriction is particular to DAT-NOM constructions. As (17) shows, there is no restriction against agreement with non-3rd person nominatives in ordinary transitives sentences.

(17)   a. Við lásum bókina
            we.NOM read.1PL the.book
            'We read the book'

b. Þið   lásuð   bókina
    you.NOM.PL read.2PL the.book
    'You (pl.) read the book'   (Sigurðsson 1996)

This is not obviously a sub-case of dative intervention, since it holds universally for all speakers, regardless of whether they are sensitive to intervention or not (Sigurðsson & Holmberg 2008). While there have been attempts to treat this as essentially a PCC effect, this view is also problematic (see e.g. Stegovec 2016). Instead, one can capitalize on the insight by Schütze (2003) that DAT-NOM constructions are unique in being the only context where nominative agreement does not target the syntactic subject (see Section 6.2 for more details).

3 Some previous approaches

The domain puzzle in particular is a challenge for virtually all previous accounts of dative intervention that assume that there is something special about the φ-features of datives that make them inherently 'defective' interveners. This line of reasoning goes back to Chomsky (2000: 123), who posited the existence of effects of the following kind:

(18)   *Defective intervention* (Broekhuis 2008: 152):
        a.   both γ and β match probe P in [... P [... γ ... β ...]]
        b. γ c-commands β
        c. γ is inactive, and;
        d. γ blocks the Agree relation between P and β

In the case of Icelandic, the intervening dative DP corresponds γ and the nominative to β. As shown in (19), agreement between T and DP$_{NOM}$ is blocked following (18).

(19)   [$_{TP}$ T ... [$_{vP}$ DP$_{DAT}$ ... [$_{VP}$ DP$_{NOM}$]]]

The putative existence of defective intervention is unexpected from a theoretical perspective, as there are a number of other situations in which irrelevant goals are simply skipped (e.g. probes for wh-movement skip non-wh DPs). The main challenge is for the domain puzzle is to make the intervening property of a dative argument not absolute, but relative to a particular syntactic configuration.

Since Sigurðsson (1991), there has been a considerable amount of literature on DAT-NOM constructions (e.g. Watanabe 1993; Schütze 1997; Boeckx 2000,

2008; Holmberg and Hróarsdóttir 2003; Hiraiwa 2005; Sigurðsson & Holmberg 2008; Ussery 2009). While it is not possible to present a comprehensive account of the previous literature here, I will briefly discuss two representative approaches.[2] The first is the Multiple Agree approach (Section 3.1) and the second is the account by Sigurðsson & Holmberg (2008), which makes use of an articulated φ-probe (Section 3.2).

3.1 Multiple agree approaches

There are a number of approaches to restrictions on agreement in DAT-NOM constructions invoke some concept of *Multiple Agree* in that the probing head T targets both the dative and the nominative argument (e.g. Boeckx 2000, 2008; Holmberg and Hróarsdóttir 2003; Hiraiwa 2005; Anagnostopoulou 2005; Nomura 2005; Ussery 2009). For concreteness' sake, let us consider the proposal by Holmberg and Hróarsdóttir (2003). In particular, Holmberg and Hróarsdóttir (2003) report contrasts such as the following:

(20) a. *Það finnast *einhverjum stúdent*   tölvurnar   ljótar
          EXPL find.PL some.DAT.SG student.DAT.SG computers.NOM ugly.NOM
          'Some student finds the computers ugly.'

      b. Það finnast *mörgum   stúdentum*   tölvurnar   ljótar
          EXPL find.PL many.DAT.PL student.DAT.PL computers.NOM ugly.NOM
          'Many students find the computers ugly.'

                                          (Holmberg and Hróarsdóttir 2003: 1000)

In (20a), we have a familiar case of a linearly-intervening dative argument *einhverjum stúdent* ('some student') blocking plural agreement with the nominative object *tölvurnar* ('computers'). What is striking, however, is that the plural dative DP *mörgum stúdentum* ('many students') does not trigger intervention (20b). Holmberg and Hróarsdóttir (2003: 1006,fn.6) conclude from this that 'number agreement between T and the embedded subject is (marginally) possible if the intervening dative NP and the embedded subject have the same number.' Thus,

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2 There is another kind of approach that will not be discussed here, which involves the relation between restructuring and agreement (e.g. Nomura 2005; Bobaljik 2008). In this approach, intervention depends on the size on the embedded clause, with larger structure intransparent to agreement in some way or another. The challenge for this kind of approach is to then tie the type of complement a verb selects to the eventual surface position of the dative.

the analysis they have in mind requires that a probe entering Multiple Agree cannot obtain conflicting values as in (21).

(21)   *[$_{TP}$ T$_{[\varphi:3SG,3PL]}$ … [… DP$_{DAT.SG}$ … [… DP$_{NOM.PL}$]]]

However, if both the intervening dative and the nominative DPs bear plural number values, then agreement is permitted:

(22)   [$_{TP}$ T$_{[\varphi:3PL,3PL]}$ … [… DP$_{DAT.PL}$ … [… DP$_{NOM.PL}$]]]

However, Kučerová (2016) has since argued that this general picture is empirically incorrect. She shows that it is not the case that all linearly-intervening, plural datives are transparent for agreement with a plural nominative DP. For example, unlike *many*, other plural quantifiers such as *few*, *both* and *almost all* block agreement with a plural nominative:

(23)   a.   *Það finnast *fáum*   *börnum*   tölvurnar   ljótar
           EXPL find.PL few.DAT.PL children.DAT.PL computers.NOM ugly.NOM
           'Few children find the computers ugly.'

     b.   *Það finnast *næstum*   *öllum*   *börnum*
           EXPL find.PL almost.DAT.PL all.DAT.PL children.DAT.PL
           tölvurnar   ljótar
           computers.NOM ugly.NOM
           'Few children find the computers ugly.'

     c.   *Það finnast *báðum*   *köttunum* mýsnar   góðar
           EXPL find.PL both.DAT.PL cats.DAT.PL mice.NOM tasty.NOM
           'Both the cats find the mice tasty.'   (Kučerová 2016: 56)

Thus, despite there being no mismatch in φ-features between the intervener and goal, agreement is still blocked in contravention of the claim put forward by Holmberg and Hróarsdóttir (2003).[3] Additionally, it unclear how one can incorporate the concept of a 'domain' into this account, so as to capture the mono-/bi-clausal distinction we have previously seen.

As for the Person Restriction, Multiple Agree approaches have to invoke some parallelism to PCC effects (Boeckx 2000; Anagnostopoulou 2003, 2005)

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3 Kučerová (2016) claims that the intervention property of a DP correlates with whether or not that DP can independently undergo Object Shift. She then views this an argument that the locus of agreement is *v* and Object Shift can apply before Agree and thereby avoid intervention.

or simply treat it as a sub-case of dative intervention (Preminger 2014: 154). The former view is somewhat problematic in light of the observation that syncretism seems to ameliorate violations of the Person Restriction (see Sigurðsson 1996; Schütze 2003; Stegovec 2016 and Section 6.2), while this does not seem to be the case for PCC effects generally (Adger and Harbour 2007). Furthermore, there are number of asymmetries between the Person Restriction and ordinary dative intervention that suggest that they are not one and the same phenemenon (e.g. lack of dialectal variation and obviation of intervention under A-movement).

3.2 Number and person as seperate probes

An alternative approach to dative intervention and Person Restriction is provided by Sigurðsson & Holmberg (2008). Recall that Sigurðsson & Holmberg (2008) describe a broad three-way split among Icelandic speakers with regard to agreement in DAT-NOM constructions:

(24) a. *Icelandic A* speakers who always allow agreement with the nominative,
     b. *Icelandic B* speakers who do not allow agreement with the nominative if a dative linearly intervenes (i.e. speakers with dative intervention),
     c. *Icelandic C* speakers who never allow agreement with the nominative.

The approach by Sigurðsson & Holmberg (2008) involves a split φ-probe where person (Pn) and number (Nr) constitute separate heads (also see Preminger 2011, 2014):

(25) $[_{CP} \ldots [_{TP} \text{Pn} \ldots \text{Nr} \ldots \text{T} \ldots [_{vP} \ldots \text{DAT} \ldots \text{NOM} \ldots]]]$

Their aim is then to provide a system that can derive both intervention and non-intervention of a dative experiencer to account for this dialectal variation. The analysis of intervention by Sigurðsson & Holmberg (2008: 259f.) relies on derivational timing and the articulated structure for φ-agreement given in (25). For Icelandic A, where datives do not block agreement with the nominative argument, they assume that there is string-vacuous raising of the dative above the number probe. Given the basic structure in (26a), the dative argument first raises above the number head before Nr probes (26b) (probing is triggered by T-to-Nr raising). Thus, at the point at which agreement between Nr and NOM_{PL} is established, the dative does not intervene and plural agreement is possible. In a later step

(26c), the dative remains low when the person head Pn probes, thereby triggering intervention.

(26)   *Icelandic A*:

     a. $[_{CP}$ EXPL $[_{TP}$ Pn ... Nr ... T ... $[_{vP}$ DAT v $[_{TP}$ NOM$_{PL}$ ...]]]]

     b. $[_{CP}$ EXPL $[_{TP}$ Pn ... DAT ... Nr$_{PL}$+T ... T ... $[_{vP}$ DAT v $[_{TP}$ NOM$_{PL}$ ...]]]]

     c. $[_{CP}$ EXPL $[_{TP}$ Pn$_3$+Nr$_{PL}$+T ... DAT ... Nr+T ... T ... $[_{vP}$ DAT v $[_{TP}$ NOM$_{PL}$ ...]]]]

For the dialect Icelandic C that does not allow agreement with the nominative, Sigurðsson & Holmberg (2008: 60) assume that the Nr probes before the dative DP raises out of *v*P (27b). Since the dative linearly crucially intervenes at this point, agreement with the nominative DP is blocked and the number probe takes a default singular value.

(27)   *Icelandic C*:

     a. $[_{CP}$ EXPL $[_{TP}$ Pn ... Nr ... T ... $[_{vP}$ DAT v $[_{TP}$ NOM$_{PL}$ ...]]]]

     b. $[_{CP}$ EXPL $[_{TP}$ Pn ... DAT ... Nr$_{SG}$+T ... T ... $[_{vP}$ DAT v $[_{TP}$ NOM$_{PL}$ ...]]]]

     c. $[_{CP}$ EXPL $[_{TP}$ Pn$_3$+Nr$_{SG}$+T ... DAT ... Nr+T ... T ... $[_{vP}$ DAT v $[_{TP}$ NOM$_{PL}$ ...]]]]

Sigurðsson & Holmberg (2008) remain rather vague about the derivation of the crucial dative intervention cases (Icelandic B). Recall that for these speakers, if the dative raises to clause-initial position, then agreement with the nominative is impossible if an expletive is merged then the dative stays low.

     They suggest that hybrid grammar, which employs an Icelandic A derivation (26) if there is an expletive in clause-initial position, but resorts to an Icelandic C derivation (27) if the dative raises to Spec-CP (Sigurðsson & Holmberg 2008: 261). Although Sigurðsson & Holmberg (2008) hint at the idea of competing grammars, no clear theory is offered as to what regulates when which grammar is used. Furthermore, one runs into a serious Look Ahead problem when their proposal is made explicit. For examples with intervention, it is crucial that the order of operations MOVE(DAT) > AGREE(NR,NOM) holds at step (28b) so that plural agreement is blocked.

(28)   *Icelandic B (expletive derivation)*:

    a.   [$_{CP}$ EXPL [$_{TP}$ [$_{PnP}$ Pn [$_{NrP}$ Nr [$_{TP}$ T [$_{vP}$ DAT v [$_{TP}$ NOM$_{PL}$ ...]]]]]]]

    b.   [$_{CP}$ EXPL [$_{TP}$ [$_{PnP}$ Pn [$_{NrP}$ DAT Nr$_{SG}$+T [$_{TP}$ T [$_{vP}$ DAT v [$_{TP}$ NOM$_{PL}$
        ...]]]]]]]]

    c.   [$_{CP}$ EXPL [$_{TP}$ [$_{PnP}$ Pn$_3$+Nr$_{SG}$+T [$_{NrP}$ DAT Nr+T [$_{TP}$ T [$_{vP}$ DAT v [$_{TP}$ NOM$_{PL}$
        ...]]]]]]]

If there is no expletive in the derivation, however, then the dative raises to Spec-CP of the matrix clause. In this case, the reverse order of operations AGREE(NR,NOM) > MOVE(DAT) must hold in order for intervention to be circumvented (29b).

(29)   *Icelandic B (raising derivation)*:

    a.   [$_{CP}$ [$_{TP}$ [$_{PnP}$ Pn ... [$_{NrP}$ Nr ... [$_{TP}$ T [$_{vP}$ DAT v [$_{TP}$ NOM$_{PL}$ ...]]]]]]]]

    b.   [$_{CP}$ [$_{TP}$ [$_{PnP}$ Pn [$_{NrP}$ DAT Nr$_{PL}$+T [$_{TP}$ T [$_{vP}$ DAT v [$_{TP}$ NOM$_{PL}$ ...]]]]]]]]

    c.   [$_{CP}$ [$_{TP}$ [$_{PnP}$ Pn$_3$+Nr$_{PL}$+T [$_{NrP}$ DAT Nr+T [$_{TP}$ T [$_{vP}$ DAT v [$_{TP}$ NOM$_{PL}$
        ...]]]]]]]]

    d.   [$_{CP}$ DAT [$_{TP}$ [$_{PnP}$ Pn$_3$+Nr$_{PL}$+T [$_{NrP}$ DAT Nr+T [$_{TP}$ T [$_{vP}$ DAT v [$_{TP}$ NOM$_{PL}$
        ...]]]]]]]]

The problem we are then faced with is that the final landing site of the dative must affect which 'grammar' (i.e. order of Agree and Merge) applies at the NrP cycle. Assuming that expletive insertion is freely available, then it is unclear how the derivation can determine whether raising or expletive insertion will apply later at a higher projection. Furthermore, there is nothing in the 'competing grammars' account that explains why it would be impossible for Icelandic B speakers to use an Icelandic A grammar in expletive derivations (28) or an Icelandic C grammar in a raising derivation such as (29). Since Sigurðsson & Holmberg (2008) do not assume a mono-clausal/bi-clausal distinction, their approach does not offer an explanation for the domain puzzle.

    Finally, their account for the Person Restriction rests on the crucial assumption that no dialect of Icelandic allows for the dative to raise above the Person projection (Pn) before it probes. As such, every speaker has an intervention effect for Person (only ever resulting in 3rd person agreement). Given that we find variation in the timing of Agree and Move at other heads and that raising of the dative is a seemingly unconstrained operation, the ban on raising to Spec-PnP seems to be little more than a necessary stipulation.

3.3 Interim summary

So far, we have seen two main puzzles regarding agreement in Icelandic DAT-NOM constructions. The first involved the much discussed pattern of 'defective' intervention of a dative experiencer for agreement with a lower nominative. As we have seen, a challenging aspect of this phenomenon is the fact that it is not possible to say that intervention is due to some inherent property of datives since intervention effects are not reported to hold in mono-clausal contexts in an Icelandic B grammar. The second puzzle involved the fact that agreement in DAT-NOM constructions is not possible with a non-3rd person nominative argument. What will be argued in the remainder of this paper is that these two puzzles share a common core, namely that they are the result of the ilicit combination of two otherwise permitted processes. The impossibility of a particular combination of operations can be viewed as a case of *cumulative constraint interaction* (cf. Haegeman et al. 2014). Let us first see the intuition behind the anaylsis to follow, which will be illustrated on the basis of dative intervention.

As shown in previous sections, for the relevant speakers, dative intervention is confined to a particular configuration, namely bi-clausal contexts in which the dative linearly intervenes between the probe and the goal. The possiblity for agreement across a dative in mono-clausal environments (7) shows that the whatever the relevant notion of Minimality is, it must not hold in this case. In other words, it is in principle possible for Agree skip a potentially closer goal (30).

(30)   *Minimality is violable*:
        $[_{TP}$ $T_{[\varphi:PL]}$ $[_{vP}$ DP_{DAT} ... $DP_{NOM.PL}$ $]]$

Furthermore, it is reasonable to assume that there is a grammatical constraint requiring agreement to be with a goal in the same local domain. Assuming that α constitutes a domain boundary (existing in bi-clausal structures), this constraint must also be taken to be violable, since we have seen that agreement is possible with a non-local goal as long as the intervener is moved (31).

(31)   *Locality violable if intervener is moved*:
        $[_{TP}$ DP_{DAT} $[_{T'}$ $T_{[\varphi:PL]}$ $[_{vP}$ $t_{DP_{DAT}}$ ... $[_{\alpha}$ ... $[$ $DP_{NOM.PL}$ ... $]]]]]$

What then makes the dative intervention configuration special is that it involves the simultaneous violation of constraints which can violated independently. As shown in (32), agreement cannot be simultaneously non-minimal and non-local.

(32)   *No simultaneous violation of Minimality and Locality*:
       $[_{TP}$ T$_{[\varphi:\square]}$ $[_{vP}$ DP$_{DAT}$ ... $[_{\alpha}$ ... $[$ DP$_{NOM.PL}$ ... $]]]$

On this view, dative intervention is triggered by the *cumulative effect* of less important, violable principles of grammar. Of course, this kind of analysis requires a framework in which cumulative constraint interactions can be modelled. The following section will propose a version of Minimalist syntax in which each step of the derivation is regulated by a set of violable constraints. Cyclic optimization is a relatively well-established approach in phonology known as *Harmonic Serialism* (see McCarthy 2008a,b, 2010, 2016), and has also been successfully applied to syntax (e.g. Heck and Müller 2000, 2007, 2013, 2016; Murphy 2017). In order to account for cumulative effects, I will adopt weighted constraints as in Harmonic Grammar (e.g. Legendre et al. 1990; Pater 2009, 2016; Potts et al. 2010). Nevertheless, we will see that the resulting system is not radically different from standard Minimalist approaches, if we restrict ourselves to well-known operations and constraints.[4]

4 Harmonic grammar

In this section, I presuppose some familiarity with the fundamental assumptions of Optimality Theory (Prince & Smolensky 1993/2004; McCarthy & Prince 1995), i.e. the idea that constraints in a grammar are ranked and violable (for applications to syntax; see Grimshaw 1997; Ackema and Neeleman 1998; Barbosa et al. 1998; Müller 2000; Müller & Sternefeld 2001; Legendre et al. 2001). The following sections will lay out two more recent developments of OT from phonology, namely weighted constraints and serial optimization.

4.1 Weighted constraints

The motivation for weighted constraints comes from the observation that there are certain patterns that defy the strict dominance property of ranked constraints. In

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4 There are various arguments which demonstrate this point. For example, work by Heck and Müller (2000, 2007) focuses on showing that the problem of successive-cyclic movement being non-feature driven can be accounted for by treating it as a local repair operation. Furthermore, Heck and Müller (2013, 2016) show that a Harmonic Serialism approach to syntax can also resolve competition between multiply available operations at a given derivational step (such as Merge and Agree). This can also be extended to classic puzzles such as *Merge over Move* (Frampton and Gutmann 1999; Chomsky 2000) as argued by Broekhuis and Klooster (2007).

Classical OT, the following abstract scenario with the constraint ranking A ≫ B ≫ C is impossible: A violation of the constraints B and C are both individually less costly than a violation of A (33), but simultaneous violation of B and C is worse than a single violation of A (34).

(33)

	A	B	C
a. Cand₁	*		
☞ b. Cand₂		*	
a. Cand₁	*		
☞ b. Cand₂			*

(34)

	A	B	C
☞ a. Cand₁	*		
b. Cand₂		*	*

Under the standard evaluation metric in Classical OT with ranked constraints, such an outcome is impossible. Strict domination of constraints means that, since Cand₁ violates the highest ranked constraint (34), it is excluded from the competition at this point and the number of violations of lower ranked constraints (B, C) is entirely irrelevant. However, it has been argued that scenarios such as (34) exist in natural language and they are typically referred to as *asymmetric trade-offs* or *gang effects* (Pater 2009, 2016).[5] These kind of cumulative interactions become straightforwardly possible if we give constraints numerical weights, rather than rankings. This approach was originally proposed by Legendre et al. (1990) as a precursor to Optimality Theory (Prince & Smolensky 1993/2004) and is known as *Harmonic Grammar* (HG). In HG, rankings translate into weighting conditions, that is, if we want to emulate the fact that a constraint such as NoCoda is ranked higher than a constraint such as Max, then we have to impose a weighting condition that the weight of NoCoda is higher than that of Max (w(NoCoda) > w(Max)). For present purposes, let us select 2 and 1 as the respective weights for NoCoda and Max (35).

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5 In particular, Pater (2009) discusses an example from geminate devoicing in Japanese loanwords. I will not recount the details here, but the upshot is that geminates only devoice if the word also contains another voiced obstruent. He shows convincingly that this exceptional behaviour is the result of simultaneous violations of a constraint *Vce-Gem against voiced geminates and of OCP-Voice, which bans multiple voiced obstruents in a word (i.e. *Lyman's Law*). Individually, violations of these constraints are not strong enough to trigger devoicing (in violation of Ident-Voice), but their cumulative effect is.

(35)

tak	NOCODA w=2	MAX w=1	$\mathcal{H}$
a. tak	-1		-2
☞ b. ta		-1	-1

The optimal candidate is the one with the highest harmony score ($\mathcal{H}$) . The harmony of a candidate it calculated by a linear equation that multiples the number of violations of a constraint by the weight of that constraint, and then calculates the harmony score of a candidate based on the sum of a its violations across all constraints.[6] Since the faithful candidate (35a) has one violation of NOCODA, which bears a weight of 2, it has a harmony score of −2 (−1 × 2). The optimal candidate in (35b) achieves a better harmony score of −1, since it has a single violation of the constraint MAX with a weight of 1. In this system, any ranking in OT can be easily translated into HG. However, weights also allow for cumulative constraint interaction. For example, if we have three constraints A, B and C with weights of 3, 2 and 2, then a single violation of either B or C will result in a better harmony score (−2) than a violation of A (−3). However, a candidate that violates both B and C (36b) will end up with a worse harmony score (−4) than one that only violates A (−3) (36a).

(36)   *Asymmetric trade-off (gang effect)*:

	A w=3	B w=2	C w=2	$\mathcal{H}$
☞ a. Cand$_1$	-1			-3
b. Cand$_2$		-1	-1	-4

This gives rise to the situation where two constraints which are ordinarily not important enough to have an effect with respect to A can 'gang up' to defy the ranking A ≫ B ≫ C, just in case they are both simultaneously violated by a single candidate. This is referred to as an 'asymmetric' trade-off since we

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6 The exact function is given in (i), where for a given candidate α, C stands for constraints, w for weights and v for violations (also see Pater 2009: 1006).

(i) $\mathcal{H}_\alpha = \sum_{i=1}^{n} v_\alpha(C_i) \times w(C_i)$

trade a violation of a higher-ranked constraint for two violations of individually lower-ranked constraints. In OT with strict dominance, trade-offs are normally symmetric and always involve trading a violation of a lower-ranked constraint against a higher one. It is important to note that the exact weights we assume for the relevant constraints are unimportant. What matters is that certain *weighting conditions* hold between constraints, namely those that will result in cumulative interaction. The abstract weighting conditions for gang effects are given in (37), where the weight of A must be greater than both B and C individually, while the summed weights of B & C must be higher than A.

(37)   *Weighting conditions for asymmetric trade-off*:
         $w(A) > w(B) \land w(A) > w(C) \land w(w(B) + w(C)) > w(A)$

We will see that it is possible for there to be single step of the derivation where an operation driven by a high-ranking constraint A is blocked if it violates two particular lower-ranked constraints simultaneously. It will be argued that this is a situation that also arises frequently in syntactic derivations, including with agreement in Icelandic.

4.2 Serial Harmonic grammar

With this background in place, the resulting system that will be pursued here involves serial optimization of derivational stages with reference to weighted, violable constraints. This hybrid approach has also gained some traction in phonology as *Serial Harmonic Grammar* (SHG) (e.g. Kimper 2011, 2016; Mullin 2011; Pater 2012; Lionnet 2015; Kaplan 2016; Ryan 2017). What I present here is the variant of SHG developed in Murphy (2017). What makes it still very close to standard Minimalism is the nature of the GEN(erator) component. Consider the architecture of the grammar given in Figure 1. This is the standard Harmonic Serialism architecture given in also presented in McCarthy (2016: 50). The input to the syntactic component is a tuple $\langle \mathcal{R}, \mathcal{N} \rangle$ containing a syntactic representation $\mathcal{R}$ and the numeration $\mathcal{N}$ of remaining elements selected from the lexicon (see Heck and Müller 2003; Heck 2008, as well as Heck et al. 2002 for discussion of the input in OT syntax). This is then fed into the HS-GEN component which by definition can perform at most one application of the standard Minimalist operations Merge and Agree.

Consequently, the reference set of output candidates is created, each differing only very minimally from the input. This set of candidates is then fed into the EVAL component that picks the optimal output based on their harmony scores with respect to a set of weighted constraints. This is the part of the grammar that
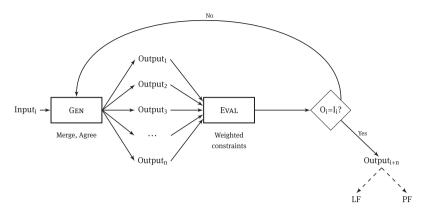
Figure 1: The architecture of Serial Harmonic Grammar applied to syntax (Murphy 2017).

crucially allows for particular derivational steps to be blocked. Once the optimal output is determined, the grammar checks whether it is the same as the input candidate. If this is not the case, then this candidate is fed back into GEN for another round of optimization. Finally, when GEN cannot improve the harmony of the candidate any further, convergence is reached and the output representation is sent to the interfaces for interpretation.

For trivial cases of structure-building, this architecture yields virtually identical procedure to standard conceptions of Minimalist syntax. Structure-building driven by c-selectional and formal features proceeds until all unchecked features are eliminated and the numeration has been exhausted. The major difference is that the Serial Harmonic Grammar architecture allows for certain derivational steps to be blocked by the cumulative interaction of lower-ranked constraints.

5 Deriving dative intervention

In this section, I will present an analysis of the domain puzzle found with dative intervention effects in Icelandic B. Recall that agreement with a nominative seems to be blocked by an intervening dative argument only in 'bi-clausal' environments. It will be argued that this involves a crucial step of the derivation being blocked by the cumulative 'gang effect' of lower-ranked constraints. First, Section 5.1 lays out the assumptions about the structure of Icelandic necessary for the analysis to follow, and Sections 5.2 presents an account of the domain puzzle in terms of a gang effect.

5.1 Background assumptions

5.1.1 Clause structure

We have seen two environments in which we find dative intervention, namely bi-clausal raising structures of the *seem*-type (38a) and small clause complements of experiencer verbs (38b).
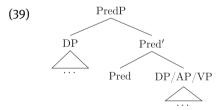
(38) a. *Það virðast *einhverjum manni*   [hestarnir   vera seinir]
          EXPL seem.3PL some   man.DAT horses.NOM be   slow
          'It seems to some man that the horses are slow.'

      b. *Það finnast *einhverjum stúdent*   [_{SC} tölvurnar   ljótar]
          EXPL find.PL some   student.DAT   computer.NOM ugly
          'Some student finds the computers ugly.'

                                        (Holmberg and Hróarsdóttir 2003: 998ff.)

Regarding the structure of small clauses such as (38b), I adopt the standard assumption that these involve a predication relation mediated by a functional projection. For the sake of concreteness, I treat this as a predication phrase (PredP) (Bowers 1993, 2001; Bailyn and Citko 1999; Bailyn 2001; Adger and Ramchand 2003; Franks 2015).[7] In particular, I follow Bowers (1993, 2001) in assuming that the predicate can also be an adjective phrase or a verb phrase, as well as a DP (39).

(39)

```
                PredP
              /       \
           DP          Pred′
          / \         /     \
         ...      Pred      DP/AP/VP
                            /   \
                            ...
```

Examples such as have the structure in (40) (however, bear in mind that this structure will be revised slightly in Section 5.1.2).

(40)   *Small clause complements*:
        [_{TP} T [_{vP} v [_{VP} student_{DAT} [_{V′} [_V find] [_{PredP} computers_{NOM} [_{Pred′} Pred [_{AP} ugly]]]]]]]

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7 This projection also bears other labels, for example den Dikken (2006, 2007) refers to it as a Rel(ator)P and Citko (2008: 262) simply calls it πP.

Turning to the bi-clausal raising structures in (38a), let us now clarify what 'bi-clausal' actually means. Although a number of authors have assumed that the complement of *virðast* is a non-finite TP as in English (e.g. Jonas 1996: 183, Frank 2002: 122 and Wood 2015: 246, among others), there is an observation going back to Sigurðsson (1989) which seems to indicate that infinitival complements of raising verbs in Icelandic must actually be smaller. For example, they are not compatible with low adverbs (41) or negation (42), regardless of word order.

(41) a. María hafði virst   [lesa bókina   ]
          Mary had   seemed   read book.the
      b. *María hafði virst   [sennilega lesa bókina   ]
          Mary had   seemed   probably read book.the
      c. *María hafði virst   [lesa sennilega bókina   ]
          Mary had   seemed   read probably book.the
      d. *María hafði virst   [lesa bókina   sennilega]
          Mary had   seemed   read book.the probably
          'Mary seemed to have (not/probably) read the book.'

<div align="right">(Sigurðsson 1989: 85)</div>

(42) a. María hafði virst   [vera í   goðu skapi]
          Mary had   seemed   be   in good mood
      b. *María hafði virst   [ekki vera í   goðu skapi]
          Mary had   seemed   not be   in good mood
      c. *María hafði virst   [vera ekki í   goðu skapi]
          Mary had   seemed   be   not in good mood
          'Mary seemed (not) to be in a good mood.'

<div align="right">(Johnson and Vikner 1994: 71)</div>

Also, this restriction still holds when the embedded subject does not raise, as shown in (43) (see Johnson and Vikner 1994: 71 for parallel examples with negation).

(43) a. Mér   hafði virst   [María   lesa bókina   ]
          me.DAT had   seemed Mary.NOM read book.the
      b. *Mér   hafði virst   [María   sennilega lesa bókina   ]
          me.DAT had   seemed Mary.NOM probably read book.the
      c. *Mér   hafði virst   [María   lesa sennilega bókina   ]
          me.DAT had   seemed Mary.NOM read probably book.the
      d. *Mér   hafði virst   [María   lesa bókina   sennilega]
          me.DAT had   seemed Mary.NOM read book.the probably
          'Mary seemed to me to have (not/probably) read the book.'

<div align="right">(Sigurðsson 1989: 85)</div>

Thus, it is clear that non-finite complements of raising verbs must be smaller than TPs and even *v*Ps (cf. Thráinsson 1993). Johnson and Vikner (1994: 71) suggest that they could be bare VPs, however this raises the question of where *María* is located in (43). If *María* were in the specifier of the *v*P projection (the canonical base-position of subjects), then this reintroduces the problem of why manner adverbs and negation cannot adjoin there. Instead, let us assume that *virðast* ('seem') always takes a small clause complement (PredP), as discussed above. Importantly, the complement of Pred can be a VP as in (42) and (43), as indicated in (39) (also see Zeller (2013) for an analysis which involves VP predication inside a small clause). This then explains why neither negation nor adjuncts are possible. Assuming that negation and low adverbs are *v*P adjuncts, they cannot adjoin to either PredP or VP in the structure in (44).

(44)   [$_{TP}$ T$_{[EPP]}$ [$_{vP}$ *v* [$_{VP}$ [$_V$ seem] [$_{PredP}$ Mary$_{NOM}$ [$_{Pred'}$ Pred [$_{VP}$ be in good mood]]]]]]]

If complements of *seem*-type raising verbs are small clauses, then what unifies the two contexts for dative intervention is that they both involve agreement with a nominative inside a SC.

Furthermore, I assume dative experiencers to be arguments of the lexical verb and that they are merged in Spec-VP, following Belletti and Rizzi (1988: 320), Pesetsky (1995: 19), Holmberg and Platzack (1995: 113), Landau (2010: 8) and Kučerová (2016: 60).[8] Putting this all together, we arrive at the following structure for the example in (38a):

(45)   *Structure of* virðast-*raising infinitives in Icelandic:*
         [$_{TP}$ T$_{[EPP]}$ [$_{vP}$ *v* [$_{VP}$ me$_{DAT}$ [$_{V'}$ [$_V$ seem] [$_{PredP}$ horses$_{NOM}$ [$_{Pred'}$ Pred [$_{VP}$ be slow]]]]]]]

5.1.2 Small clauses as phases

Now, that we have established that both relevant contexts for intervention involve small clauses, let us consider their locality properties. There are a number of arguments in the literature that SCs constitute locality domains, i.e. phases

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8 Wood (2015: 244) and Wood & Sigurðsson (2014: 280) assume a slightly different structure with the experiencer introduced in the specifier of a particular applicative projection (ApplP; cf. Pylkkänen 2002). This projection is also assumed to be able to introduce a DP or TP complement (Wood 2015: 246). It therefore seems that one could relabel VP as ApplP without any major implications, or indeed simply adopt Wood's (2015: 244) denotation of the Appl head for *seem*-verbs. It is worth noting that the assumption of the ApplP structure also allows Wood & Sigurðsson (2014) to account for asymmetric vs. symmetric DAT-NOM constructions embedded under *láta* ('let') by appealing to phase extension (den Dikken 2007).

(Matushansky 2000; Bowers 2002; Harves 2002; den Dikken 2006; Citko 2008, 2014; Tanaka & Yokogoshi 2010). A well-known argument argument comes from predicate inversion in copula constructions (e.g. Heggie 1988; Hoekstra and Mulder 1990; Heycock 1995; den Dikken 1995; Moro 1997). Consider the analysis of the following example based on Moro (2000: 41):

(46)   a. $[_{TP} [_{DP}$ John $]_1$ is $[_{PredP}$ t$_1$ $[_{Pred'}$ Pred $[_{DP}$ the problem $]$ $]]$
       b. $[_{TP} [_{DP}$ The problem $]_1$ is $[_{PredP} [_{DP}$ John $]$ $[_{Pred'}$ Pred t$_1$ $]]$

What is particularly challenging about predicate inversion in (46b) is that raising of the lower predicate seems to constitute a Minimality violation. In order to account for this, den Dikken (2006, 2007) proposes a richer structure for small clauses with an additional functional projection (FP) above PredP (this was also suggested by Bennis et al. 1998: 90 and Moro 2000: 45 for independent reasons). Assuming that PredP constitutes the phase, then only the higher argument XP at the phase edge should be accessible to higher probes given the structure in (47a) (renaming den Dikken's RelP to PredP in keeping with previous assumptions). den Dikken's (2006: 115) solution is then to propose that movement of the head of PredP to F 'extends' the phase (47b) (see Gallego 2010 for the similar concept of *phase sliding*).

(47)   a. $[_{FP}$ F $[_{\textbf{PredP}}$ XP $[_{Pred'}$ Pred YP $]]]$
       b. $[_{\underline{\textbf{FP}}}$ F+Pred $[_{PredP}$ XP $[_{Pred'}$ t$_{Pred}$ YP $]]]$

After phase extension to FP, both arguments are accessible to a higher probe such as T (48).

(48) $[_{TP}$ T$_{[EPP]}$ $[_{vP}$ ... $[_{\underline{\textbf{FP}}}$ F+Pred$_1$ $[_{PredP} [_{DP}$ John $]$ $[_{Pred'}$ t$_1$ $[_{DP}$ the problem $]$ $]]]]]$

However, notice that this in itself does not solve the equidistance problem. In order to rectify this, den Dikken (2006: 114, 2007: 5) propose a modification to the definition of 'closeness' (vis-à-vis *minimal domains*) that will yield equidistance in cases such as (48). Since 'equidistance' has to be stipulated in one way or another (even by symmetrical approaches to the SC, e.g. Moro 2000, 2007; Pereltsvaig 2001, 2007; Citko 2011; Bondaruk 2015), I will consider an alternative.

Let us assume that the functional projection FP dominating PredP constitutes the phase head. In order for raising to Spec-TP to be possible later in the derivation, the moving item must first move to the edge of Spec-FP. However, this movement is only licensed if there some other feature in the numeration that

requires a potential checker (see e.g. Heck and Müller 2003; Bošković 2008). The result of this general approach is that successive-cyclic movement to the phase edge happens pre-emptively when there is a higher head with the relevant properties. Furthermore, given some relevant assumption about equidistance, either predicate will be able to move to Spec-FP. Information-structural restrictions of the particular construction may influence which of the XPs moves to Spec-FP (Heycock 1995; Heycock and Kroch 1999, 2002; Martinović 2016).

(49) a.   [$_\text{FP}$ XP [$_\text{F'}$ F [$_\text{PredP}$ t$_\text{XP}$ [$_\text{Pred'}$ Pred YP]]]]
      b.   [$_\text{FP}$ YP [$_\text{F'}$ F [$_\text{PredP}$ XP [$_\text{Pred'}$ Pred t$_\text{YP}$]]]]

In the present system, the subject of an SC only moves to the phase edge of FP to anticipate a later movement step. Thus, Agree with the subject of a SC which does not raise will necessarily entail a violation of the *Phase Impenetrability Condition* (PIC) (Chomsky 2000, 2001).

(50) [$_\text{TP}$ T$_{[\varphi:\square]}$ [$_\text{vP}$ *v* [$_\text{VP}$ [$_\text{V}$ seem] [$_\text{FP}$ F [$_\text{PredP}$ horses$_\text{NOM}$ [$_\text{Pred'}$ Pred [$_\text{VP}$ be slow]]]]]]]] `‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒` *PIC `‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒`

However, we will see that this is not as problematic as it may seem if the PIC is conceived of as a violable constraint. The important conclusion in the section to bear in mind for the analysis to follow in Section 5.2 is that both of the constructions in which we find intervention involve agreement with a goal outside the local phase.

5.2 The domain puzzle

In this section, we will see how the assumptions laid out in the preceding sections can derive the domain puzzle in (12), repeated below.

(51) *The domain puzzle*:
      In Icelandic B, dative DPs intervene for agreement in bi-clausal, but not in mono-clausal configurations.

In the previous section, we saw that 'bi-clausal' actually refers to a small clause structure, which unifies the two contexts for dative intervention that we saw in (38a) and (13a) (to simplify the representations, the small clause structure in (50) will be simply represented as SC):

(52) a. *Það virðast *einhverjum manni* [_{SC} hestarnir   vera seinir]
            EXPL seem.3PL some   man.DAT   horses.NOM be   slow
            'It seems to some man that the horses are slow.'

      b. *Það finnast *einhverjum stúdent*   [_{SC} tölvurnar   ljótar]
            EXPL find.PL some   student.DAT   computer.NOM ugly
            'Some student finds the computers ugly.'

                                                (Holmberg and Hróarsdóttir 2003: 998ff.)

Furthermore, it was argued that SCs are phases and that nominative arguments that do not raise remain inside the domain of the phase. As a result, agreement into a small clause will violate the PIC. Thus, the intuition behind the analysis to follow can be sketched as follows: the Minimal Link Condition (MLC) and the Phase Impenetrability Condition (PIC) are constraints on agreement that cannot be simultaneously violated by a single instance of Agree. For example, in mono-clausal ditransitives where the dative moves to Spec-TP, both the PIC and MLC are respected (53a).[9] If an expletive occupies Spec-TP in a mono-clausal ditransitive, then the dative intervenes such that agreement no longer targets the closest DP, in violation of the MLC. In 'bi-clausal' constructions containing small clause predications, agreement with the nominative contravenes the PIC, however this violation is tolerable as long as the dative does not intervene for the MLC (53c). The intervention effect is characterized by a configuration in which Agree must simultaneously cross a DP argument and a phase boundary as in (53d), resulting in simultaneous violation of the MLC and the PIC.

(53) a. *Mono-clausal, no intervention (✓PIC, ✓MLC):*
         [_{TP} DP_{DAT} [_{T′} T_[φ:PL] [_{vP} *v* [_{VP} t_{DP_DAT} [_{V′} V DP_{NOM.PL}]]]]]

      b. *Mono-clausal, intervention (✓PIC, *MLC):*
         [_{TP} EXPL [_{T′} T_[φ:PL] [_{vP} *v* [_{VP} DP_{DAT} [_{V′} V DP_{NOM.PL}]]]]]

      c. *Bi-clausal, no intervention (*PIC, ✓MLC):*
         [_{TP} DP_{DAT} [_{T′} T_[φ:PL] [_{vP} *v* [_{VP} t_{DP_DAT} [_{V′} V [<u>SC</u> DP_{NOM.PL} …]]]]]]

      d. *Bi-clausal, intervention (*PIC, *MLC):*
         *[_{TP} EXPL [_{T′} T_[φ:□] [_{vP} *v* [_{VP} DP_{DAT} [_{V′} V [<u>SC</u> DP_{NOM.PL} …]]]]]]

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9 In all of the relevant environments, agreement crosses 'defective' *v*Ps, which do not project a specifier. Following Chomsky (2000, 2001), I take these not to be phases (but cf. Legate 2003).

As we have seen, this is the schematic pattern of a gang effect. In order to set up a system that permits (53a–c) while ruling out only (53d), one has to demonstrate that both the MLC and the PIC are individually violable and lower-ranked than the constraint driving Agree.

5.2.1 The minimal link condition

First, let us consider the Minimal Link Condition. Like other notions of Minimality (e.g. *(Feature-Based) Relativized Minimality*; Rizzi 2011, *Minimality*; Collins 2000: 58, *F-over-F Principle*; Müller 2011: 42), proximity is calculated relative to the features involved in the operation. For example, a φ-probe will only care about intervening goals bearing relevant features. Let us assume the following constraint:

(54) MINIMAL LINK CONDITION (MLC):
      Agree with the closest c-commanded DP bearing the relevant features.

The interesting thing about agreement in mono-clausal constructions such as (55) is that the MLC would privilege agreement with the dative, since it is the closer goal.

(55) Það voru [$_{vP}$ *einhverjum* [$_{VP}$ gefnir Þessir sokkar   ]]
      there were.PL somebody.DAT   given these socks.NOM
      'Somebody was given the socks'   (Jónsson 1996: 153)

We know from examples such as (56) that there must be an independent factor or constraint that rules out agreement with datives.

(56) [$_{TP}$ *Stelpunum*$_1$ var   / *voru   [$_{vP}$ hjálpað t$_1$]]
          girls.DAT.PL was.3SG   were.3PL   helped
      'The girls were helped.'

Following Preminger (2014: 171), let us call this constraint *OBLIQUETARGET:

(57) *OBLIQUETARGET:
      Do not target oblique-marked DPs for agreement.

In order to rule out agreement with dative-marked arguments in examples such as (56), *OBLTGT must be ranked higher than the constraint which drives agreement.

I take this to be the constraint Agree in (58) that militates against unchecked probe features on a given head.

(58) Agree:
No unchecked/unvalued probe features.

If we put this all together in a tableau, we derive the following for (56).

(59)

$[_{TP}\ T_{[\varphi:\square]}\ [_{vP}\ DP_{DAT.3SG}\ \ldots\ ]]$	*OblTgt w=12	Agree w=9	Dep-F w=5	Incl w=1	$\mathcal{H}$
a. $[_{TP}\ T_{[\varphi:\square]}\ [_{vP}\ DP_{DAT.3PL}\ \ldots\ ]]$		-1			-9
b. $[_{TP}T_{[\varphi:3PL]}\ [_{vP}\ DP_{DAT.3PL}\ \ldots\ ]]$	-1			-1	-13
☞ c. $[_{TP}T_{[\varphi:3PL]}\ [_{vP}\ DP_{DAT.3PL}\ \ldots\ ]]$			-1	-1	-6

In (59), we are considering the crucial derivational step where T is probing for a goal for φ-agreement. The faithful candidate (59a) (without agreement) violates Agree because of the persistence of the unvalued φ-feature. Candidate (59b) violates *OblTgt because it involves agreement with the dative-marked subject. The candidate with the best harmony score is (59c), which only violates the lower-weighted constraint Dep-F(eature) that punishes insertion of default values and the general faithfulness constraint against agreement Incl(usiveness) whose definition is given in (60).

(60) Incl(usiveness):
Do not copy feature values not present in the input (e.g. via Agree).

Ideally, the existence of a constraint such as (57) should have some independent motivation. This can be demonstrated, for example, by finding a language in which the reverse ranking/weighting Agree ≫ *OblTgt holds, i.e. a language which permits φ-agreement with a dative DP. Basque seems to be in a good candidate for such a language. Some dialects of Basque are reported to show person agreement with a dative argument as in (61).[10]

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[10] The finer details of *dative displacement* in Basque is of course more intricate than can be explained here, see Arregi and Molina-Azaola 2004; Ormazabal & Romero 2007; Rezac 2008a,b; Keine 2010: §4.2; Rezac & Fernández 2013 (among others) for discussion.

(61)   a.   Zuk$_i$ niri$_j$ sagarra$_k$ eman n$_j$-a-u-zu$_i$
           you.ERG me.DAT apple.ABS given 1-THM-√-2
           'You gave me the apple.'

       b.   Niri$_i$ sagarra$_j$ gustatzen n$_i$-a-u
           me.DAT apple.ABS pleasing   1-THM-√
           'I like apples'

<div align="right">(Hondarribia dialect; Rezac 2008b: 101f.)</div>

For languages or dialects that allow bona fide agreement with dative subjects, it is clear that the *OBLTGT must be ranked lower than AGREE. Following standard OT reasoning, the existence of such variation is predicted if agreement with oblique arguments is blocked by a violable constraint such as *OBLTGT that can have potentially different rankings across languages.

Returning to the monoclausal, ditransitive Icelandic examples in (55), let us consider the step of the derivation in which T has been merged and the expletive has been merged in Spec-TP. The faithful candidate in (62a) incurs a fatal violation of AGREE leading to a harmony score of –9, whereas agreeing with the dative experiencer as in (62c) is even worse (–13). Furthermore, the cost of violating DEP-F to insert a default value in (62d) also proves too costly. The optimal candidate (62b) agrees with the nominative at the cost of a violations of MLC and INCL (–4).

(62)

[$_{TP}$ EXPL [$_{T'}$ T$_{[\varphi:\square]}$ [$_{vP}$ v [$_{VP}$ DP$_{DAT.3SG}$ [$_{V'}$ DP$_{NOM.3PL}$]]]]]	*OBLTGT w=12	AGREE w=9	DEP-F w=5	MLC w=3	INCL w=1	$\mathcal{H}$
a. [$_{TP}$ EXPL [$_{T'}$ T$_{[\varphi:\square]}$ [$_{vP}$ v [$_{VP}$ DP$_{DAT.3SG}$ [$_{V'}$ DP$_{NOM.3PL}$]]]]]		-1				-9
☞ b. [$_{TP}$ EXPL [$_{T'}$ T$_{[\varphi:3SG]}$ [$_{vP}$ v [$_{VP}$ DP$_{DAT.3SG}$ [$_{V'}$ DP$_{NOM.3PL}$]]]]]				-1	-1	-4
c. [$_{TP}$ EXPL [$_{T'}$ T$_{[\varphi:3SG]}$ [$_{vP}$ v [$_{VP}$ DP$_{DAT.3SG}$ [$_{V'}$ DP$_{NOM.3PL}$]]]]]	-1				-1	-13
d. [$_{TP}$ EXPL [$_{T'}$ T$_{[\varphi:3SG]}$ [$_{vP}$ v [$_{VP}$ DP$_{DAT.3SG}$ [$_{V'}$ DP$_{NOM.3PL}$]]]]]			-1			-5

In this system, Minimality conditions exist in the grammar only as a violable constraint. If the MLC were conceived of as a traditional, inviolable constraint, it would not be clear how agreement across it would be possible in (62). Of course, one can complicate the definition of the MLC to ignore non-accessible goals, but then it remains a challenge to reintroduce intervention effects only in certain configurations. We can avoid complications of this sort by assuming that the MLC is a 'soft', violable constraint (cf. Stepanov et al. 2008: 4). As we will see, despite being low-ranked it can still have an effect in conjunction with other constraints.

5.2.2 The phase impenetrability condition

Now let us consider examples such as (5) again (repeated below), in which φ-agreement is non-local, i.e. no longer with co-arguments of the same verb.

(63) a. *Mér*$_1$ virðast [$_{vP}$ t$_1$ [$_{SC}$ hestarnir vera seinir]
me.DAT seem.3PL   horses.NOM be   slow
'It seems to me that the horses are slow'

   b. *Það virðast [$_{vP}$ *einhverjum manni* [$_{SC}$ hestarnir vera seinir]
there seem.3PL   some   man.DAT   horses.NOM be   slow
'It seems to some man that the horses are slow.'

As was motivated by the preceding discussion, what is special about the contexts for intervention in (63b) versus (63a) is that they involve a bi-clausal domain due to the small clause structure. Put differently, dative intervention arises when the verb does not agree with one of its own arguments. While agreeing with an argument outside of its local predication is a factor, (63a) shows that such 'long-distance' agreement in bi-clausal raising constructions is possible if the dative moves to Spec-TP. The analysis I ultimately want to pursue for (63b,c) is that it is not possible for a single agreement step to violate both the MLC constraint proposed in the preceding section and agree with a goal in a non-local domain. The question now is what kind of constraint punishes non-local agreement.

Given our assumption that small clauses constitute phases and that the nominative remains inside the domain of the phase head, let us assume that agreement with the nominative in all examples in (63) violates the following constraint:

(64) PHASE IMPENETRABILITY CONDITION (PIC) (Heck and Müller 2003: 109):
The domain of a head X of a phase XP is not accessible to operations outside XP; only X and its edge are accessible to such operations.

While the PIC is not traditionally conceived of as a violable constraint, arguments that seem to support this conclusion have already been put forward. For example, while the PIC seems to correctly constrain movement, Agree operations have been argued not to be subject to the PIC (see e.g. Stjepanović & Takahashi 2001; Lee 2003; Bošković 2003, 2007; Bobaljik and Wurmbrand 2005). While one can certainly modify the definition of the PIC to accommodate this (see e.g. Landau 2000: 69), its selective scope makes sense if the simple definition of the PIC in (64)

is a violable constraint.[11] In OT terms, the fact that the PIC holds for Move but not for Agree can be understood as the result of the following schematic ranking conditions: AGREE ≫ PIC ≫ MOVE. Consequently, the PIC is more important than the driving force for MOVE, meaning that PIC violations are more costly than simply not moving. However, since the constraint requiring Agree is ranked higher than the PIC, violations of PIC become tolerable if they result in satisfaction of AGREE.

Moreover, there is language-internal evidence for the activity of the PIC in Icelandic. It has been reported that, for speakers of dialects allowing agreement with the nominative, 3rd singular default agreement is not possible in mono-clausal contexts (see e.g. Watanabe 1993; Schütze 1997; Boeckx 2000, 2008, 2009; Anagnostopoulou 2003; Hiraiwa 2005; Nomura 2005; Ussery 2009):

(65)   Henni leiddust / *leiddist strákarnir
        her.DAT bored.3PL bored.3SG boys.NOM
        'She found the boys boring.'   (Boeckx 2009: 23)

However, in the bi-clausal raising constructions of the *seem*-type, we find optionality between the default and agreeing forms of the verb (66).

(66)   Mér   virðast / virðist [$_{SC}$ Þeir   vera skemmtilegir]
        me.DAT seem.3PL seem.3SG   they.NOM be interesting
        'It seems to me that they are interesting.'
                             (Boeckx 2009: 24)

Since the dative arguments has been fronted in both cases, the only clear difference between these two examples regards the locality of the Agree operation. Thus, the breakdown in optionality can be attributed to an additional violation of PIC in (65). Let us assume that the optionality between default and agreeing candidates results from a tie. In the derivation of (66), the violation incurred by the default candidate (67c) for violating DEP-F is the same as the summed violations of PIC and the general anti-agreement constraint INCL(USIVENESS) for the agreeing candidate (67b). Thus, either of these outputs can form the input to the next stage of the derivation.

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11 The various evidence for assuming that the PIC does not hold for Agree is discussed in Bošković (2007: 613ff.) and includes agreement into finite clauses in Chukchee and Blackfoot, long-distance agreement in English existential constructions, LF anaphor movement and long-distance licensing in wh-in-situ languages. Furthermore, this modification is also required by an Agree-based theory of control into CP complements such as Landau (2000).

(67)   *Optional agreement in bi-clausal environments*:

[TP DP_DAT [T′ T[φ:□] [vP v [VP t_DP [V′ [SC DP_NOM.3PL]]]]]]	AGREE w=9	DEP-F w=5	PIC w=4	INCL w=1	ℋ
a. [TP DP_DAT [T′ T[φ:□] [vP v [VP t_DP [V′ [SC DP_NOM.3PL]]]]]]	-1				-9
☞ b. [TP DP_DAT [T′ T[φ:PL] [vP v [VP t_DP [V′ [SC DP_NOM.3PL]]]]]]			-1	-1	-5
☞ c. [TP DP_DAT [T′ T[φ:3SG] [vP v [VP t_DP [V′ [SC DP_NOM.3PL]]]]]]		-1			-5

In mono-clausal environments such as (65), however, Agree does not cross a phase boundary and therefore no PIC violation is incurred by the agreeing candidate in (68b). Consequently, it has a higher score than the default candidate and thereby blocks it.

(68)   *Obligatory agreement in mono-clausal environments*:

[TP DP_DAT [T′ T[φ:□] [vP v [VP t_DP [V′ DP_NOM.3PL]]]]]	AGREE w=9	DEP-F w=5	PIC w=3	INCL w=1	ℋ
a. [TP DP_DAT [T′ T[φ:□] [vP v [VP t_DP [V′ DP_NOM.3PL]]]]]	-1				-9
☞ b. [TP DP_DAT [T′ T[φ:PL] [vP v [VP t_DP [V′ DP_NOM.3PL]]]]]				-1	-1
c. [TP DP_DAT [T′ T[φ:3SG] [vP v [VP t_DP [V′ DP_NOM.3PL]]]]]		-1			-5

Furthermore, note that this tie is broken if an additional MLC violation is incurred by adding an intervening dative argument in the lower clause, resulting in the impossibility of agreement (69) (see Schütze 1997: 107f. for further examples of this kind).

(69)   Mér₁   virðist   / *?virðast   t₁ [SC stráknum líka Þessir bílar]
         me.DAT seem.3SG   seem.3PL   boy.DAT like these horses.NOM
         'It seems to me that the boy likes the horses.'

                                                                    (Watanabe 1993: 417f.)

5.2.3 Dative intervention as a gang effect

So far, we have seen that it is, in principle, possible for agreement to either cross a closer potential goal (in violation of the MLC) or a phase boundary (in violation of the PIC). What characterizes the contexts for defective intervention in (63b), where the dative linearly intervenes for agreement with a nominative inside a

SC, is that this is the only context in which agreement targets both with a non-local and non-minimal goal. The result is shown in (70). We have seen that the weights of both MLC and PIC are individually lower than the constraint resulting in insertion of default feature values DEP-F. This means that, all else being equal, candidates involving agreement that is non-minimal (violating MLC) will be preferred to candidates with default agreement, as shown in (62). Agreement that violates the PIC was shown to generate a tie with default agreement (68). However, flouting both of these constraints simultaneously as in (70b) results in a worse harmony score than inserting a feature value (70c). The option of simply not agreeing at all, as in (70a) incurs a violation that is even more costly still. As a result, the optimal output in this configuration is the non-agreeing, default 3SG form in (70c).

(70)

$[_{TP}$ EXPL $[_{T'}$ T$_{[\varphi:\square]}$ $[_{vP}$ v $[_{VP}$ DP$_{DAT}$ $[_{V'}$ [**sc** DP$_{NOM.3PL}$ …]]]]]]	AGREE w=9	DEP-F w=5	PIC w=4	MLC w=3	INCL w=1	$\mathcal{H}$
a. $[_{TP}$ EXPL $[_{T'}$ T$_{[\varphi:\square]}$ $[_{vP}$ v $[_{VP}$ DP$_{DAT}$ $[_{V'}$ [**sc** DP$_{NOM.3PL}$ …]]]]]]	-1					-9
b. $[_{TP}$ EXPL$[_{T'}$ T$_{[\varphi:PL]}$ $[_{vP}$ v $[_{VP}$ DP$_{DAT}$ $[_{V'}$ [**sc** DP$_{NOM.3PL}$ …]]]]]]			-1	-1	-1	-8
☞ c. $[_{TP}$ EXPL $[_{T'}$ T$_{[\varphi:3SG]}$ $[_{vP}$ v $[_{VP}$ DP$_{DAT}$ $[_{V'}$ [**sc** DP$_{NOM.3PL}$ …]]]]]]		-1				-5

(gang effect between PIC and MLC in row b)

This conforms to the abstract pattern for gang effects that was previously established. It can be demonstrated that MLC and PIC have lower individual weights than the constraint against default agreement (DEP-F). However, their combined weight is higher. The weighting conditions necessary for this analysis of dative intervention are given in (71).

(71)   *Weighting conditions for dative intervention*:
    a. $w(\text{DEP-F}) > w(\text{MLC})$
    b. $w(\text{DEP-F}) > w(\text{PIC})$
    c. $w(w(\text{MLC}) + w(\text{PIC})) > w(\text{DEP-F})$

As previously mentioned, the actual weights we attribute to the constraints is arbitrary as long as they conform to the weighting conditions in (71). One of the virtues of the analysis is that it can derive the fact that the intervening property of dative arguments is not fixed, but rather domain specific. This is a challenge for accounts that suggest tie intervention to some inherent property of DP$_{DAT}$. This is where violable constraints and their cumulative interaction play an important role. The price of skipping an intervening dative is tolerable in isolation, but not when combined with another individually-tolerable locality violation.

5.2.4 The nature of default agreement

In the previous section, we saw that an agreeing candidate that happens to violate both MLC and PIC is exceptionally blocked by another candidate with insertion of the 'default' form 3SG. However, the question still remains as to why 3rd person singular is chosen, since there are a number of other potential forms that could be inserted. Preminger's (2014) approach to default agreement assumes that 3SG is the morphological realization of 'failed agreement', i.e. the absence of φ-feature values in a feature-geometric approach such as that of Harley and Ritter (2002) or McGinnis (2005). An account couched in Optimality Theory has a different way of accounting for default agreement morphology, namely as *The Emergence of the Unmarked* (TETU) (e.g. McCarthy & Prince 1994; Bresnan 2001; Becker and Flack Potts 2011). In phonology, TETU has been invoked to explain why repair operations such reduplication and epenthesis seem to involve the least-marked material available (see e.g. McCarthy & Prince 1994; Kager 1999; Rice 2007 for discussion). The basic idea is that if material has to be inserted via 'default', then the form it takes is regulated by a low-ranked hierarchy of markedness constraints.

We can adopt this approach here too. Let us assume the following markedness hierarchies in (72), derived from the traditional Silverstein scales for person and number (cf. Silverstein 1976; Zwicky 1977: 718) and their respective weighting conditions (73).

(72) a. $*1 \gg *2 \gg *3$ (73) a. $w(*1) > w(*2) > w(*3)$

      b. $*\text{PL} \gg *\text{SG}$ b. $w(*\text{PL}) > w(*\text{SG})$

Like the relevant markedness hierarchies in phonology, the constraints in (73) are so low-ranked that they do not normally have an effect on determining grammatical outputs. Their effect only visible in emergent contexts where material has to be inserted into the structure. Here, they determine which form is the least marked and therefore least costly. Recall that in dative intervention contexts (70), the agreeing candidate had a worse harmony score than the one which inserted a 3SG value in violation of DEP-F. However, we left open the question of why this particular value was chosen as opposed to say 1SG. Consider the same evaluation, now focussing on the competition between the non-agreeing candidate (74a) and possible inserted values (74b–g) (other candidates and higher constraints have been omitted for ease of exposition).

(74)   *Default agreement as TETU*:

$[_{TP}$ T$_{[φ:□]}$ ... $[_{vP}$ DP$_{DAT}$ ... $[_{SC}$DP$_{NOM.3PL}$ $]]]$	AGREE w=9	DEP-F w=5	*PL w=1	*SG w=0.5	*1 w=3	*2 w=2.5	*3 w=1.5	$\mathcal{H}$
a. $[_{TP}$ T$_{[φ:□]}$ ... $[_{TP}$ DP$_{DAT}$ ... $[_{SC}$ DP$_{NOM.3PL}$ $]]]$	-1							-9
b. $[_{TP}$ T$_{[φ:\mathbf{1SG}]}$ ... $[_{vP}$ DP$_{DAT}$ ... $[_{SC}$ DP$_{NOM.3PL}$ $]]]$		-1		-1	-1			-8.5
c. $[_{TP}$ T$_{[φ:\mathbf{1PL}]}$ ... $[_{vP}$ DP$_{DAT}$ ... $[_{SC}$ DP$_{NOM.3PL}$ $]]]$		-1	-1		-1			-9
d. $[_{TP}$ T$_{[φ:\mathbf{2SG}]}$ ... $[_{vP}$ DP$_{DAT}$ ... $[_{SC}$ DP$_{NOM.3PL}$ $]]]$		-1		-1		-1		-8
e. $[_{TP}$ T$_{[φ:\mathbf{2PL}]}$ ... $[_{vP}$ DP$_{DAT}$ ... $[_{SC}$ DP$_{NOM.3PL}$ $]]]$		-1	-1			-1		-8.5
☞ f. $[_{TP}$ T$_{[φ:\mathbf{3SG}]}$ ... $[_{vP}$ DP$_{DAT}$ ... $[_{SC}$ DP$_{NOM.3PL}$ $]]]$		-1		-1			-1	-7
g. $[_{TP}$ T$_{[φ:\mathbf{3PL}]}$ ... $[_{vP}$ DP$_{DAT}$ ... $[_{SC}$ DP$_{NOM.3PL}$ $]]]$		-1	-1				-1	-7.5

Candidate (75a) ends up with a worse harmony score than all other insertion candidates, as we saw in the previous competition (70) due to the necessary weighting condition $w(\text{AGREE}) > w(\text{DEP-F})$. However, this turns out to be somewhat of a simplification as we have so far said nothing about the choice between options in (74b–g) is regulated and all share a violation of DEP-F. This is where the low-ranked markedness hierarchies for $φ$-features play a role. Given the weighting conditions in (73), the optimal insertion candidate will be the one which chooses the least marked values, i.e. the lowest on the number and person hierarchy. In this case, and cross-linguistically, this is 3rd person singular. As a result, dative intervention configurations are a context in which normal agreement processes are blocked and the unmarked can 'emerge'. A further advantage of appealing to a low-ranked markedness $φ$-hierarchy for default agreement will be discussed in Section 6.4, namely that it offers an account of the Person Restriction as a cumulative effect.

6 Dialectal variation and the person restriction

This section will discuss aspects of dialectal variation and the Person Restriction. First, recall that we proposed that we could identify the three 'core' agreement grammars for Icelandic given in (8) and repeated below.

(75)   *Core grammars of Icelandic*:

GRAMMAR	EXPL verb DAT NOM	EXPL verb DAT $[_{TP}$ NOM	DAT verb t$_{DAT}$ $[_{TP}$ NOM
Icelandic A	✓	✓	✓
Icelandic B	✓	✗	✓
Icelandic C	✗	✗	✗

The preceding sections provided a rather exhaustive discussion of the Icelandic B grammar that involves intervention in non-local agreement contexts. The question is how what constraints or rankings we need to derive the A and C grammars in (75). The following two sections will address each of these grammars in turn.

6.1 Icelandic A

Recall that the grammar of Icelandic A always allows agreement with the nominative, regardless of other structural factors. In a nutshell, the difference between Icelandic A and Icelandic B is that weights of MLC and PIC in Icelandic A do not trigger a cumulative effect when violated simultaneously. Consequently the weighting condition in (76) stating that there is no asymmetric trade-off between MLC+PIC and DEP-F is present in Icelandic A, but not in Icelandic B grammars.

(76) $w(\text{DEP-F}) > w(\text{MLC+PIC})$

This will mean that the domain puzzle that we focussed on earlier does not arise in Icelandic A. Agreement with the nominative is possible regardless of intervention and locality. In mono-clausal contexts (77), the agreeing candidate is chosen over the DEP-F-violating default candidate both in intervention (77b) and non-intervention contexts (78d).

(77)   *Icelandic A (mono-clausal):*

$[_{\text{TP}}$ EXPL $[_{\text{T}'}$ T$_{[\varphi:\Box]}$ $[_{v\text{P}}$ DP$_{\text{DAT}}$ ... DP$_{\text{NOM.PL}}$ $]]]$	DEP-F w=5	MLC w=2	PIC w=2	INCL w=1	$\mathcal{H}$
a. $[_{\text{TP}}$ EXPL $[_{\text{T}'}$ T$_{[\varphi:3\text{SG}]}$ $[_{v\text{P}}$ DP$_{\text{DAT}}$ ... DP$_{\text{NOM.PL}}$ $]]]$	-1				-5
☞ b. $[_{\text{TP}}$ EXPL $[_{\text{T}'}$ T$_{[\varphi:3\text{PL}]}$ $[_{v\text{P}}$ DP$_{\text{DAT}}$ ... DP$_{\text{NOM.PL}}$ $]]]$		-1		-1	-3
$[_{\text{TP}}$ DP$_{\text{DAT}}$ $[_{\text{T}'}$ T$_{[\varphi:\Box]}$ $[_{v\text{P}}$ t$_{\text{DP}}$ ... DP$_{\text{NOM.PL}}$ $]]]$	DEP-F w=5	MLC w=2	PIC w=2	INCL w=1	$\mathcal{H}$
c. $[_{\text{TP}}$ DP$_{\text{DAT}}$ $[_{\text{T}'}$ T$_{[\varphi:3\text{SG}]}$ $[_{v\text{P}}$ t$_{\text{DP}}$ ... DP$_{\text{NOM.PL}}$ $]]]$	-1				-5
☞ d. $[_{\text{TP}}$ DP$_{\text{DAT}}$ $[_{\text{T}'}$ T$_{[\varphi:3\text{PL}]}$ $[_{v\text{P}}$ t$_{\text{DP}}$ ... DP$_{\text{NOM.PL}}$ $]]]$				-1	-1

In the bi-clausal environments, no gang effect arises in (78b) since the summed weight of MLC and PIC does not outweigh that of DEP-F. Thus, full agreement is

then an equally good option as default agreement, even in bi-clausal, intervention contexts.

(78)   *Icelandic A (bi-clausal)*:

	DEP-F w=5	MLC w=2	PIC w=2	INCL w=1	$\mathcal{H}$
[TP EXPL [T′ T[φ:□] [vP DPDAT [SC DPNOM.PL …]]]]					
☞ a. [TP EXPL [T′ T[φ:3SG] [vP DPDAT [SC DPNOM.PL …]]]]	-1				-5
☞ b. [TP EXPL [T′ T[φ:3PL] [vP DPDAT [SC DPNOM.PL …]]]]		-1	-1	-1	-5
	DEP-F w=5	MLC w=2	PIC w=2	INCL w=1	$\mathcal{H}$
[TP DPDAT [T′ T[φ:□] [vP tDP [SC DPNOM.PL …]]]]					
c. [TP DPDAT [T′ T[φ:3SG] [vP tDP [SC DPNOM.PL …]]]]	-1				-5
☞ d. [TP DPDAT [T′ T[φ:3PL] [vP tDP [SC DPNOM.PL …]]]]			-1	-1	-3

6.2 Icelandic C

Deriving the grammar of Icelandic C speakers is more complicated. Recall that these are speakers which do not allow for agreement with nominative arguments in DAT-NOM constructions, regardless of intervention or locality. A standard OT approach to blocking nominative agreement would be to simply rank the markedness constraint against agreement (INCL) higher than the constraint requiring agreement (AGREE). However, this would have the unwelcome consequence of blocking agreement with nominatives across the board. As we have seen, plural agreement with nominative arguments is obligatory outside of DAT-NOM constructions (79).

(79)   Strákarnir leidd-ust/*-ist
       boys.NOM walked-3PL/*-3SG
       'The boys walked (hand-in-hand).'   (Sigurðsson 1996: 1)

Consequently, we need some way of distinguishing nominative agreement in DAT-NOM constructions from agreement with nominatives elsewhere. To achieve this, we can follow an insight by Schütze (2003: 299) that DAT-NOM constructions are the only context in which both of the meta-requirements on agreement in (80) are not respected.

(80)   a.   A verb must agree with the nominative marked argument.
        b.   A verb must agree with the subject.

This is supported by Sigurðsson's (1996) observation that violations of the Person Restrictions are ameliorated by syncretism with the default form (3rd singular). As we have seen, agreement with a non-3rd person nominative object results in ungrammaticality (81a). However, the second person singular form of the verb *leiðast* ('to be bored') is identical to the third person singular form, i.e. *leiddist*. It has been reported that speakers surprisingly accept examples such as (81b) despite the fact they involve agreement with a non-3rd person nominative argument and thereby formally violate the Person Restriction.

(81)   a.   *Henni leidd-umst   við.
            her.DAT was.bored-1PL we.PL
            'She was bored of us.'
       b.   ?Henni leidd-ist   Þú.
            her.DAT was.bored-3SG/2SG you.SG
            'She was bored of you.'   (Schütze 2003: 300)

Thus, it seems that syncretic or near-syncretic forms can 'trick' the parser into thinking that both of the requirements in (81) are satisfied simultaneously. This therefore provides support for the intuition behind Schütze's account.

In all other constructions, the nominative argument is also the subject. However, it is a well-known fact that dative arguments pass subjecthood diagnostics in Icelandic (e.g. Zaenen et al. 1985). Since DAT-NOM constructions are the only context involving agreement with a non-subject nominative, we could translate (81b) into the constraint in (82), which would only be violated by nominative agreement in DAT-NOM constructions (see Hrafnbjargarson 2001).

(82)   AGR-SUBJ (to be revised):
         A verb agrees with its subject.

However, this constraint has the drawback of referring to the notion of 'subject', which does not exist as a primitive in standard Minimalism (unlike in Relational Grammar, for example; Perlmutter 1980; Perlmutter & Postal 1983). Instead, let us assume that the relevant constraint makes reference to the universal hierarchy of θ-roles given in (83) (see Jackendoff 1972; Belletti and Rizzi 1988; Speas 1990).

(83)   *Hierarchy of θ-roles*:
         agent > experiencer > theme > other

The constraint singling out nominative agreement in DAT-NOM constructions will then be defined as follows:

(84) AGR-θ:
A verb agrees with the highest of its arguments on the θ-hierarchy.

In DAT-NOM constructions, AGR-θ will require agreement with the dative experiencer, due to it being higher on (83), however agreement with dative arguments is ruled out by a suitably high-ranked constraint (e.g. *OBLTGT). With this in mind, it is important that the cost of agreeing with a non-subject nominative (i.e. the summed weights of AGR-θ and INCL) are higher than the cost of default agreement (i.e. DEP-F). This has the effect that the default candidate is always selected as the optimal output, regardless of other factors such as locality or minimality (85).

(85) *Icelandic C (mono-clausal)*:

[TP EXPL [T′ T[φ:□] [vP DP$_{DAT}$ ... DP$_{NOM.PL}$]]]	DEP-F w=5	AGR-θ w=4	INCL w=3	PIC w=3	$\mathcal{H}$
☞ a. [TP EXPL [T′ T[φ:3SG] [vP DP$_{DAT}$ ... DP$_{NOM.PL}$]]]	-1				-5
b. [TP EXPL [T′ T[φ:3PL] [vP DP$_{DAT}$ ... DP$_{NOM.PL}$]]]		-1	-1		-7

[TP DP$_{DAT}$ [T′ T[φ:□] [vP t$_{DP}$ ... DP$_{NOM.PL}$]]]	DEP-F w=5	AGR-θ w=4	INCL w=3	PIC w=3	$\mathcal{H}$
☞ c. [TP DP$_{DAT}$ [T′ T[φ:3SG] [vP t$_{DP}$ ... DP$_{NOM.PL}$]]]	-1				-5
d. [TP DP$_{DAT}$ [T′ T[φ:3PL] [vP t$_{DP}$ ... DP$_{NOM.PL}$]]]		-1	-1		-7

Once this weighting condition is established, then additional violations such as MLC or PIC in bi-clausal examples such as (86d) become irrelevant since the harmony score of agreeing candidates is already worse than default agreement without them.[12]

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12 In Section 6.4, it will be argued that AGR-θ does not hold for bi-clausal contexts. Even if we were to remove the relevant violations of AGR-θ in (86), the cumulative weight of PIC and INCL still suffices to block agreement.

(86)   *Icelandic C (bi-clausal)*:

[TP EXPL [T′ T[φ:□] … [vP DPDAT [SC DPNOM.PL]]]]	DEP-F w=5	AGR-θ w=4	INCL w=3	PIC w=3	$\mathcal{H}$
☞ a. [TP EXPL [T′ T[φ:3SG] [vP DPDAT [SC DPNOM.PL …]]]]	-1				-5
b. [TP EXPL [T′ T[φ:3PL] [vP DPDAT [SC DPNOM.PL …]]]]		-1	-1		-7
[TP DPDAT [T′ T[φ:□] [vP tDP [SC DPNOM.PL …]]]]	DEP-F w=5	AGR-θ w=4	INCL w=3	PIC w=3	$\mathcal{H}$
☞ c. [TP DPDAT [T′ T[φ:3SG] [vP tDP [SC DPNOM.PL …]]]]	-1				-5
d. [TP DPDAT [T′ T[φ:3PL] [vP tDP [SC DPNOM.PL …]]]]		-1	-1	-1	-10

Outside of DAT-NOM constructions, however, we see that agreement with nominative arguments emerges at the most harmonic option again (87b), due to the fact that AGR-θ is no longer violated.

(87)

[TP T[φ:□] [vP DPNOM.PL [v′ v [VP V DP]]]]	DEP-F w=5	AGR-θ w=4	INCL w=3	PIC w=3	$\mathcal{H}$
a. [TP T[φ:□] [vP DPNOM.PL [v′ v [VP V DP]]]]	-1				-5
☞ b. [TP T[φ:3PL] [vP DPNOM.PL [v′ v [VP V DP]]]]			-1		-3

6.3 Modelling variation

Recall that empirical studies such as Jónsson (2016) and Ussery (2017) showed that there is actual a considerable amount of both intra- and interspeaker variation with regard to agreement strategies with nominative objects. We have seen that the grammars deriving agreement (A), non-agreement (C) and bi-clausal dative intervention (B) result from different weights being assigned to the relevant constraints (e.g. DEP-F, PIC, MLC, AGR-θ):

(88)   *Core grammars of Icelandic*:

GRAMMAR	Key weighting condition
Icelandic A	*w*(DEP-F) > *w*(MLC+PIC)
Icelandic B	*w*(MLC+PIC) > *w*(DEP-F)
Icelandic C	*w*(AGR-θ+INCL) > *w*(DEP-F)

Variation between these three grammars can be captured in the present constraint-based approach by appealing to a stochastic version of Harmonic Grammar such as Noisy HG (see Hayes 2017 for a recent overview; also see e.g. Jäger 2007 on so-called MAXENT models).[13] The basic idea is that a probabilistic value of random noise is introduced to the weight of each constraint. Following Coetzee and Kawahara (2013: 54), this is represented as either a positive or negative integer *nz* that is added to a constraint's weight prior to multiplication. Consider the following abstract example where the weights of constraints B and C would normally trigger a gang effect relative to constraint A. However, in Noisy HG, the introduction of stochastic noise changes the outcome by shifting the weights present in acquired grammar such that no gang effect arises (89).

(89)   *Stochastic variation in Noisy HG*:

	A w=3 nz=0.8	B w=2 nz=0.1	C w=2 nz=-0.5	$\mathcal{H}$
a. Cand$_1$	-1 × 3.8			-3.8
☞ b. Cand$_2$		-1 × 2.1	-1 × 1.5	-3.6

Since the 'grammars' in (88) correspond to different weights of constraints within the same system, we can model variation as random noise applied to weights causing a probabilistic shift between these different grammars, rather than the simultaneous presence of multiple competing grammars (cf. Marušič et al. 2015). The level of noise can be arbitrary enough to account for the wide-ranging variation observed within and between speakers, however it can also be affected by extra-grammatical motivations (Coetzee and Kawahara 2013), which may well also play a role in the grammar of agreement in Icelandic (Jónsson 2016). Finally, while the addition of noise to the grammar may seem to complicate the system further, it has been shown by Boersma and Pater (2016) that Noisy HG grammars are learnable (a concern which was raised by a reviewer).

6.4 Deriving the person restriction

Finally, let us turn to the analysis of the Person Restriction in Icelandic. Recall from the discussion in Section 2.2 that agreement with a nominative is subject to the following restriction:

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13 The alternative in a non-constraint-based approach would be to assume variation in features (Adger 2006; Adger and Smith 2010), however it seems that this approach alone lacks the necessary flexibility to give rise to the considerable degree of variation that we observe.

(90)   *Icelandic Person Restriction* (Sigurðsson & Holmberg 2008: 254):
       In DAT-NOM constructions, only 3rd person NOM may control agreement.

This is motivated by the observation that agreement with non-3rd person nominative arguments, as in (91a,b) is ruled out.

(91)   a.   *Henni   líkuðum   við.
            her.DAT liked.1PL we.1PL.NOM
            'She liked us.'
       b.   *Henni   líkaðir   Þú.
            her.DAT liked.2SG you.2SG.NOM
            'She liked you.'
       c.   Henni   líkuðu   Þeir.
            her.DAT liked.3PL they.3PL.NOM
            'She liked them.'   (Sigurðsson 1996)

We can derive this in the present system as follows. In the previous section, we saw that the existence of a constraint AGR-*θ* is motivated for speakers of Icelandic C who do not allow agreement with the nominative, but only in DAT-NOM constructions. Given a particular weighting, it is then possible for an agreeing candidate to achieve a worse harmony score than the unvalued (ungrammaticality-inducing) candidate. For example, all candidates that agree with the nominative in DAT-NOM constructions will necessarily violate AGR-*θ* and the antagonistic Agree constraint INCL. However, they also incur violations of the low-ranked markedness hierarchy for person (*1 ≫ *2 ≫ *3) that was shown to regulate the form of default agreement (see Section 5.2.4). The Person Restriction can now be made to follow from the interaction of the constraints against Agree (AGR-*θ*, INCL) with the markedness hierarchy. For 1st and 2nd person agreement, the additional cost of the *1 or *2 violation pushes the harmony score below that of the non-agreeing candidate. This is shown in (92) and (93) for 1st and 2nd person nominatives, respectively.

(92)   *Person Restriction for 1st person arguments*:

[$_{TP}$ DP$_{DAT}$ T$_{[φ:□]}$ [$_{vP}$ t$_{DP}$ DP$_{NOM.1PL}$]]	AGREE w=9	AGR-*θ* w=4	INCL w=3	*1 w=3	*2 w=2.5	*3 w=1.5	$\mathcal{H}$
☞ a. [$_{TP}$ DP$_{DAT}$ T$_{[φ:□]}$ [$_{vP}$ t$_{DP}$ DP$_{NOM.1PL}$]]	-1						-9
b. [$_{TP}$ DP$_{DAT}$ T$_{[φ:1PL]}$ [$_{vP}$ t$_{DP}$ DP$_{NOM.1PL}$]]		-1	-1	-1			-10

gang effect

(93) *Person Restriction for 2nd person arguments*:

[TP DP_DAT T_[φ:□] [vP t_DP DP_NOM.3PL]]	AGREE w=9	AGR-θ w=4	INCL w=3	*1 w=3	*2 w=2.5	*3 w=1.5	$\mathcal{H}$
☞ a. [TP DP_DAT T_[φ:□] [vP t_DP DP_NOM.2PL]]	-1						-9
b. [TP DP_DAT T_[φ:2PL] [vP t_DP DP_NOM.2PL]]		-1	-1		-1		-9.5

(gang effect)

The optimal outputs are therefore the unvalued candidates (92a) and (93a), which lead to a crash at the interfaces, and therefore ungrammaticality (default candidates will be discussed below). However, the weight violation for 3rd person values lies below the threshold for the gang effect (>2). Thus, agreement with a 3rd person argument achieves the better harmony (94).

(94) *No Person Restriction for 3rd person arguments*:

[TP DP_DAT T_[φ:□] [vP t_DP DP_NOM.3PL]]	AGREE w=9	AGR-θ w=4	INCL w=3	*1 w=3	*2 w=2.5	*3 w=1.5	$\mathcal{H}$
a. [TP DP_DAT T_[φ:□] [vP t_DP DP_NOM.3PL]]	-1						-9
☞ b. [TP DP_DAT T_[φ:3PL] [vP t_DP DP_NOM.3PL]]		-1	-1			-1	-8.5

(no gang effect)

It is important to note that this is not just a matter of tweaking the weights of lower constraints in order to get the right result. As was mentioned several times in the preceding discussion, the actual weights we postulate are abitrary. Instead, it is the *weighting conditions* that are important. On the basis of the weighting conditions motivated by observable phenomena in the language in question, it is the job of the learner (and the analyst) to come up with a set of weights that are compatible with the weighting conditions in that language. The only thing that is important when determining the exact weights involved is that we respect the independently motivated weighting conditions in (95).

(95) a. $w(\text{AGREE}) > \{w(\text{AGR-}\theta), w(\text{INCL})\}$
   b. $w(*1) > w(*2) > w(*3)$

The explanation of the Person Restriction presented above is compatible with this. It crucially depends on the fact that the combined weight of AGR-θ and *3 is higher than DEP-F. This can only be the case if it is true that *3 is independently lower weighted than *1 and *2. The discussion of default agreement as a TETU effect in Section 5.2.4 already established these weighting conditions on independent grounds. The only novel thing we have added to derive the Person

Restriction are the two weighting conditions in (96). Intuitively, (96a) states that the summed violations of agreeing with a nominative 1st person argument outweigh the violation for not agreeing at all, and the same holds for 2nd person arguments (96b).

(96) a. $w(w(\text{AGR-}\theta) + w(\text{INCL}) + w(\ast1)) > w(\text{AGREE})$
      b. $w(w(\text{AGR-}\theta) + w(\text{INCL}) + w(\ast2)) > w(\text{AGREE})$

However, this addition neither contradicts nor changes anything about the previously established outcomes. In fact, this provides account of why it is 3rd person that has a special status both as the form for default agreement and the only exception to the Person Restriction. To fully appreciate this, imagine a language Icelandic′ that has a Person Restriction only for 2nd and 3rd, but not 1st person arguments. It would not be possible to employ the reasoning above here since this would require that $w(w(\text{AGR-}\theta) + w(\text{INCL}) + w(\ast1))$ be lower than $w(w(\text{AGR-}\theta) + w(\text{INCL}) + w(\ast3))$, while simultaneously requiring that $\ast1$ bear a higher weight than $\ast3$. This obviously leads to an irreconcilable contradiction in the system. Thus, we can simply utilize freedom of weighting and the independently-required markedness hierarchy for number to derive the Person Restriction without any further stipulations.

In the Person Restriction tableaux above, we did not consider the default candidate as part of the competition. Interestingly, it has been reported that even default agreement also becomes impossible in mono-clausal contexts such as (97a) when the Person Restriction is also violated. It remains possible in the familiar bi-clausal environments such as (97b), however.

(97) a. Henni ?*mundi / *mundum alltaf líka við
          her.DAT would.3SG   would.1PL always like we.NOM.1PL
          'She would always like us.'
      b. Henni *mundi* / *mundum Þá virðast [$_{SC}$ við   vera
          her.DAT would.3SG   would.1PL then seem   we.NOM.1PL be
          hérna]
          here
          'It would then seem to her that we are here.'

(Sigurðsson 2004: 73)

This is somewhat unexpected, as we have seen previously that the weighting $w(\text{AGREE}) > w(\text{DEP-F})$ holds, for example with the gang effect in tableaux (70). In this case, when the agreeing was blocked by the cumulative force of PIC and MLC, it was the default candidate rather than the non-agreeing one that was selected as optimal. As such, we would expect the default rather than the unvalued candidate

to emerge as optimal if the agreeing candidate is blocked in PR-violating configurations. Recall the definition of Agr-θ (repeated below) penalizes candidates in which a verb does not agree with its nominative argument.

(98) AGR-θ:
      A verb agrees with the highest of its arguments on the θ-hierarchy.

Unlike with monoclausal ditransitives, the dative experiencer in raising *seem*-constructions is not strictly speaking an argument of the verb *virðast* ('seem'). Although we have been treating DP experiencers of *seem*-verbs as also being merged in Spec-V, footnote 8 mentioned the alternative that they are introduced in the specifier of a separate applicative head (Appl) (Wood & Sigurðsson 2014: 280; Wood 2015: 244). On this view, we could argue that the dative experiencer of a *seem*-verb does not count as one of its arguments and, as a result, (98) is vacuously satisfied in bi-clausal contexts.[14] To see this, first consider why default agreement is blocked in monoclausal PR-violating contexts (99).

(99) *No default possible with Person Restriction violation (mono-clausal):*

$[_{TP}\ DP_{DAT}\ T_{[\varphi:\square]}\ [_{vP}\ t_{DP}\ DP_{NOM.1PL}\ ]]$	AGREE w=9	DEP-F w=6	AGR-θ w=4	INCL w=3	*1 w=3	*2 w=2.5	*3 w=1.5	$\mathcal{H}$
☞ a. $[_{TP}\ DP_{DAT}\ T_{[\varphi:\square]}\ [_{vP}\ t_{DP}\ DP_{NOM.1PL}\ ]]$	-1							-9
b. $[_{TP}\ DP_{DAT}\ T_{[\varphi:1PL]}\ [_{vP}\ t_{DP}\ DP_{NOM.1PL}\ ]]$			-1	-1	-1			-10
					gang effect			
c. $[_{TP}\ DP_{DAT}\ T_{[\varphi:3SG]}\ [_{vP}\ t_{DP}\ DP_{NOM.1PL}\ ]]$		-1	-1				-1	-11.5
		gang effect						

The agreeing candidate in (99b) obtains a worse harmony score than the unvalued candidate (99a) due to its violating the Person Restriction. However, the default candidate in (99c) violates both DEF-F for inserting a feature, and AGR-θ since the verb does not agree with its highest argument on the θ-hierarchy (the dative subject). The result of this additional AGR-θ violation is that the total harmony score of the default candidate is worse than the unvalued candidate (99a) ($-9 < -11.5$). Because of this, the unvalued candidate is selected as the optimal syntactic

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14 Note that the lower verb *vera* ('be') in (97b) also vacuously satisfies the constraint in (98) by virtue of being non-finite and therefore not agreeing at all. This shows that the correct formulation of (98) should actually be conditional: 'If a verb agrees, it agrees with the highest of its arguments on the θ-hierarchy'. This also explains why default candidates do not incur a violation of AGR-θ.

output and ultimately leads to a crash at the interfaces due to an unvalued probe feature and therefore ungrammaticality.

For the sake of comparison, consider the parallel example in (100) where the Person Restriction is not violated. Again, since the default candidate (100c) acquires an even worse score than the unvalued candidate (100a), it is only the competition between (100a) and (100b) that is relevant (as demonstrated above). Since a violation of *3 is not severe enough to trigger a Person Restriction effect, the agreeing candidate in (100b) emerges as the most harmonic candidate.

(100)   *No default possible without Person Restriction violation (mono-clausal):*

$[_{TP}$ DP$_{DAT}$ T$_{[φ:□]}$ $[_{vP}$ t$_{DP}$ DP$_{NOM.3PL}$]]	AGREE w=9	DEP-F w=6	AGR-θ w=4	INCL w=3	*1 w=3	*2 w=2.5	*3 w=1.5	$\mathcal{H}$
a. $[_{TP}$ DP$_{DAT}$ T$_{[φ:□]}$ $[_{vP}$ t$_{DP}$ DP$_{NOM.3PL}$]]	-1							-9
☞ b. $[_{TP}$ DP$_{DAT}$ T$_{[φ:3PL]}$ $[_{vP}$ t$_{DP}$ DP$_{NOM.3PL}$]]			-1	-1			-1	-8.5
c. $[_{TP}$ DP$_{DAT}$ T$_{[φ:3SG]}$ $[_{vP}$ t$_{DP}$ DP$_{NOM.3PL}$]]		-1	-1				-1	-11.5

When the Person Restriction is violated in bi-clausal contexts, on the other hand, the additional AGR-θ violation is not incurred by the default candidate (101c) since the dative experiencer does not count as an argument of the matrix verb for reasons discussed above. The vacuous satisfaction of this constraint results in (101c) having a better harmony score than (101a) and the unvalued candidate is therefore blocked, giving rise to default agreement as the only option.

(101)   *Default possible with Person Restriction violation (bi-clausal):*

$[_{TP}$ DP$_{DAT}$ T$_{[φ:□]}$ $[_{vP}$ $[_{ApplP}$ t$_{DP}$ $[_{sc}$ DP$_{NOM.1PL}$ ...]]]]	AGREE w=9	DEP-F w=6	AGR-θ w=4	INCL w=3	*1 w=3	*2 w=2.5	*3 w=1.5	$\mathcal{H}$
a. $[_{TP}$ DP$_{DAT}$ T$_{[φ:□]}$ $[_{vP}$ $[_{ApplP}$ t$_{DP}$ $[_{sc}$ DP$_{NOM.1PL}$ ...]]]]	-1							-9
b. $[_{TP}$ DP$_{DAT}$ T$_{[φ:1PL]}$ $[_{vP}$ $[_{ApplP}$ t$_{DP}$ $[_{sc}$ DP$_{NOM.1PL}$ ...]]]]			-1	-1	-1			-10
☞ c. $[_{TP}$ DP$_{DAT}$ T$_{[φ:3SG]}$ $[_{vP}$ $[_{ApplP}$ t$_{DP}$ $[_{sc}$ DP$_{NOM.1PL}$ ...]]]]		-1					-1	-7.5

To conclude this section, it was shown that the cumulative force of the constraint AGR-θ with the low-ranked markedness hierarchy for person allows us to derive the Person Restriction from the independent observation that 3rd person is less marked (hence its status as the default form) and therefore bears a lower weight than the local persons.

7 Conclusion

This paper has addressed two puzzles involving dative intervention in Icelandic. The first is the mono-clausal/bi-clausal restriction that has been reported for dative intervention (the domain puzzle). It was shown that this contextual restriction on intervention is problematic for virtually all previous approaches, which assume that the intervening property of datives is static. The second phenomenon was the well-known Person Restriction in Icelandic, stating agreement in DAT-NOM constructions can only ever be 3rd person.

It was argued that both of these processes can be understood as cumulative effects. We saw that an adequate descriptive characterization of the domain puzzle is that it is possible to agree with a non-minimal goal, it is also possible to agree with a non-local goal, but not with a goal that is both non-local and non-minimal. The domain puzzle is therefore problematic for the common conception of Minimality (targeting the closest goal) or Locality (agreeing in a local domain) as 'hard', inviolable restrictions, since it is apparent that both can be flouted independently, but not simultaneously. It was argued that cases such as these require a system permits cumulative constraint interaction, that is, for less important constraints in the grammar to 'gang up' against more important ones. To this end, it was proposed that we can import weighted constraints from influential current theories of phonology, and make use of these in an OT-based approach to syntax. While the empirical situation surrounding agreement in Icelandic DAT-NOM constructions is complex, it was argued that evidence can still be found for an 'Icelandic B' grammar with bi-clausal dative intervention. The activity of such a grammar varies from speaker to speaker and this can be modeled in an approach such as Noisy HG where the constraint weightings distinguishing between Icelandic A, B and C are probabilistic, thereby allowing for speakers to actually have distinct 'grammars' of agreement.

It was also demonstrated how the Person Restriction also falls out as a cumulative effect once one looks for the explanation of why it is restricted to a particular configuration, like intervention seems to be. Thus, it is shown that is possible to agree with a nominative that is not the object, and it also possible to target a non-3rd person goal for agreement, but not both at the same time. Furthermore, the fact that the Person Restriction holds for 3rd person arguments to the exclusion of 1st and 2nd person arguments has independent motivation since these are higher in the markedness hierarchy and therefore necessarily bear higher weights.

In general, the present account offers a different way of viewing the selective scope of phenomena. We have two restrictions on agreement (for intervention and

person), which are not absolute constraints on structures, but rather only hold in certain configurations. As such, viewing constraints as fixed and inviolable makes it incredibly difficult to account for their exceptions without hard-wiring them into the definitions of the constraints themselves. If we instead view constraints as violable and bearing weights, then we begin to see how they can interact to block certain operations from applying.

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