Parameterized [E]llipsis: An argument from German determiner sharing

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1. Introduction

In gapping sentences, some determiners or quantifiers can be omitted¹ from the non-initial conjunct(s), see (1). McCawley (1993) has termed structures with this kind of ellipsis *determiner sharing* constructions.

- (1) a. Too many German shepherds are named Fritz, too many Irish setters are named Kelly, and too many Huskies are named Nanook. McCawley (1993)
 - b. Jede Gräfin mag Lavendel und jede Königin mag Flieder. every countess likes lavender and every queen likes lilac *"Every countess likes lavender and every queen likes lilac."*
 - c. Er hat jedem Lehrer ein Buch gegeben und jedem Schüler ein he has every.DAT teacher.DAT a.ACC book.ACC given and every.DAT student.DAT a.ACC Heft. folder.ACC

"He has given every teacher a book and every student a folder."

As first observed by McCawley (1993), this ellipsis has some interesting restrictions: it is parasitic on gapping, and it is only possible if the determiner is the first element in the second conjunct.

Ellipsis of a determiner in gapping contexts has been attested in English (e.g. McCawley 1993; Johnson 2000; Lin 2002; Kasai 2007), Spanish (Arregi & Centeno 2005; Centeno 2012), Korean (e.g. Kim 2015), Polish (Citko, 2006), Dutch (Ackema & Szendrői 2002), and German. Based on new German data, I will propose a new type of ellipsis analysis, that is not founded on a small-conjuncts account for gapping, like many previous analyses (e.g. Johnson 2000; Lin 2002; Arregi & Centeno 2005; Citko 2006). The general idea of the analysis is this: in clause-sized conjuncts, DS is licensed by gapping via Agree for [E]-features. If this analysis is on the right track, it might suggest that the [E] feature is more flexible than previously thought: it can agree upward as well as downward.

To that end, this paper is structured as follows: Section 2 describes the empirical properties of DS and gapping in German. The analysis is then outlined in section 3. Section 4 discusses possible implications of the proposed [E]-deletion analysis. Section 5 concludes.

2. Properties of DS and gapping

2.1. Determiner sharing

Ellipsis of a determiner in gapping contexts shows some interesting restrictions, as first observed by McCawley (1993, see also Lin 2002). First, DS is parasitic on Gapping. If the finite verb in the second (and following) conjunct(s) is realized overtly, an interpretation of a shared quantifier is not available.

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The deleted elements are marked with strike-through throughout.

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In sentences like (2), the only possible interpretation is one of a bare plural.

(2) Alle M\u00e4dchen spielen Klavier und ____ Jungen spielen Geige.
all girls play piano and boys play violin
✓ "All the girls play the piano and boys in general play the violin."
X "All the girls play the piano and all the boys play the violin."

Secondly, the elided quantifier must be initial in its conjunct. Any material overtly intervening between the coordinator and the quantifier makes DS impossible. This is illustrated with a topicalized object DP in (3). In both conjuncts, the object is fronted and blocks sharing of the quantifier *viele* "many" in the subject DP.

(3) *[Ein Teleskop] haben viele Kollegen Petra geschenkt, und [einen a.ACC telescope.ACC have many.NOM colleagues.NOM Petra.DAT given and a.ACC Römertopf] haben viele Freunde Petra geschenkt. clay.pot.ACC have many.NOM friends.NOM Petra.DAT given intended: "Many colleagues have given Petra a telescope, and many friends have given her a clay pot."

Thirdly, DS can never skip elements. A prenominal modifier can only be deleted a) if it is the first one or b) if its left/higher neighbor has been deleted, (4).

Lastly, not all D-elements may be shared. There is a lot of cross- and intra-linguistic variation. The only cross-linguistically somewhat robust generalization seems to be that (bare) cardinal numbers and the indefinite article may never be shared². (5) offers non-exhaustive lists of elements that can and cannot be part of DS-ellipsis in German.

- (5) a. possible in German DS: *alle* 'all', *einige* 'some', *wenige* 'few', *viele* 'many', *kein* 'no', definite article, ordinal numbers
 - b. impossible in German DS: indefinite article, cardinal numbers, possessive pronouns, demonstratives

2.2. Gapping in German

In this section, I will briefly argue that conjuncts in German gapping sentences are clause-sized. Most analyses of DS designed for English (e.g. Johnson 2000; Lin 2002; Ackema & Szendrői 2002; Kim 2011). German differs from English in the size of conjuncts involved in gapping. In English, it can be argued that conjuncts in gapping are quite small (*v*Ps; see e.g. Chao 1988; Johnson 2009; Coppock 2001; López & Winkler 2003; Toosarvandani 2013, but see also Frazier 2015; Potter et al. 2017 for a different point of view). German seems to involve bigger, clause-sized conjuncts (see e.g. Hartmann 2000; Reich 2007; Repp 2009). German gapping (and consequently DS) therefore cannot be analyzed with non-ellipsis approaches like across-the-board movement (Johnson 2004, 2000; Lin 2002; Arregi & Centeno 2005) or Multidominance (Citko 2006; Kasai 2007).

Evidence for the large size of German gapping conjuncts comes from the lack of wide scope, the lack of cross-conjunct binding, and the possibility to topicalize objects. First, scope taking elements like negation are not able to take wide scope in German (Repp 2009), (6).

(6) ?*Max hat den Kuchenteller nicht abgewaschen und Paul die Salatschüssel. Max has the cake.plate not washed and Paul the salad.bowl

² Based on a small sample of five languages: German, English (Johnson 2000, Lin 2002), Spanish (Arregi & Centeno 2005), Korean (Kim 2011, Citko 2006, Hyunjung Lee, p.c.), and Dutch dialects (Ackema & Szendroi 2002).

This suggests that the first conjunct is large enough that negation is merged inside of it, as opposed to in a higher part of the structure that c-commands both conjuncts. Secondly, German does not allow cross-conjunct binding. In English gapping sentences, the subject of the first conjunct can bind the subject of a non-initial conjunct, (7-a) (see e.g. McCawley 1993; Johnson 2004; Kennedy 2001).

(7) a. Not every girl₁ ate a green banana and her₁ mother ate a ripe one. (Johnson 1996:26)
b. #Not every girl₁ ate a green banana and her₁ mother ate a ripe one.

Cross-conjunct binding has been used as an argument for small conjuncts: $subject_1$ must be in a highenough position to c-command $subject_2$ in order to bind it. This is standardly analyzed as asymmetric movement of the first subject into the surface subject-position Spec, TP. The second subject stays *in situ* in Spec, vP in the second conjunct. This suggests that conjuncts in English gapping are vPs. German shows no such contrast, (8).

(8) a. #Keine Studentin₁ wählt die CDU und ihr₁ Betreuer wählt die SPD. no student votes the CDU and her advisor votes the SPD
b. #Keine Studentin₁ wählt die CDU und ihr₁ Betreuer wählt die SPD. no student votes the CDU and her advisor votes the SPD intended: "*No student votes for the CDU and her advisor for the SPD*."

In (8), the subject of the first conjunct arguably moves to a position preceding the finite verb, traditionally known as the prefield, i.e., Spec,CP. Still, that position is not high enough to c-command the subject in the second conjunct. This can be accounted for if the conjuncts are so large that movement out of a conjunct is impossible. This suggests that both conjuncts are CPs and both subjects move within their conjunct.

The last argument I want to cite here concerns another type of movement inside the conjuncts: it is possible to front objects in gapping structures (e.g. Hartmann 2000). The object DP in (9) has been moved to the prefield. That means that conjuncts in gapping structures must be large enough to host this landing position for XP fronting, i.e., they must be clause-sized.

(9) Ich weiss nicht, [was Peter Ute zum Geburtstag schenkt], und [*(was) sie I know not what Peter.NOM Ute.DAT to.the birthday gives and what she.NOM ihm zum Geburtstag schenkt].
him.DAT to.the birthday gives *"I don't know what Peter gives to Ute for her birthday, and what she gives to him."* (D. Büring, p.c. to Hartmann 2000)

These points indicate that gapping in German involves large, clause-sized conjuncts. In the next section, I will illustrate how gapping can be analyzed as deletion of the finiteness phrase FinP, with preceding evacuation movement of the remnants, and how this deletion interacts with ellipsis of quantifiers.

3. Analysis

3.1. Parasitism is licensing via Agree

The analysis of parasitic ellipses relies on syntactic licensing of deletion in the sense of Aelbrecht (2010). This section aims to illustrate how the relation between DS and gapping has the same properties as syntactic Agree (Chomsky 2000, 2001; Baker & Souza 2020, (10)).

- (10) Properties of Agree
 - a. Phase impenetrability condition (Chomsky 2001): The domain of phase head H is not accessible to operations at the next-higher phase ZP; only H and its edge are accessible to such operations.
 - b. Relativized Minimality condition (Rizzi 1990): Agree between a goal X and a ccommanding probe Y is only possible iff there is no intervening possible goal Z such that Y > Z > X, where ">" signifies c-command.

c. C-command condition: A head H can only enter an Agree relation with a head J iff there is a c-command relation between H and J.

We will first look at the PIC. If the PIC holds for the relationship between gapping and determiner sharing, we predict that gapping in the matrix clause should not be able to license DS in the embedded clause, assuming that gapping licenses DS. This is borne out, (11). DS is only licit if the DP in which DS applies is phase mates with the gapped verb.

(11) [_{CP} Kein Mädchen sollte Klavier spielen,] findet SIE, und [_{CP} *(kein) Junge sollte Geige no girl should piano play thinks she and no boy should violin spielen], findet ER. play thinks he intended: "She thinks that no girl should play the piano and he thinks that no boy should play the violin."

In (11), an embedded clause has been fronted in both conjuncts. The verb in the matrix clause has been gapped in the second conjunct. This gapping cannot license sharing of *kein* "no" in the embedded clause because of the intervening phase boundary. Note that (11) is acceptable if the quantifier surfaces overtly.

Turning to the Minimality condition, an intervening DP can block DS in a lower DP, (12). The indirect object that c-commands the direct object intervenes in the relation between the gapping-triggering Foc^0 and the DS-exhibiting DO.

(12) *Ich habe meiner Mutter jede Blume gezeigt und [meinem Vater jede Krähe]. I have my.DAT mother every flower shown and my.DAT father every crow intended: "I have shown my mother every flower and my father every crow."

Lastly, the c-command condition is difficult to test. The relevant test case would involve a higher domain in which an element exhibits DS, and a lower domain where there is gapping, such that the DS-DP c-commands the gapping-head. Gapping in the embedded environment should be too low to license DS higher up. (13) exhibits such a case, but there is a confounding factor: a phase boundary. It's not clear whether the phase boundary or the lack of c-command lead to ungrammaticality.

(13) *[_{CP} Jede Professorin glaubt dass die Regierung die Wirtschaft beeinflusst] und every professor believes that the government.NOM the economy.ACC influences and [_{CP} jede Studentin denkt (*dass) der Markt die Regierung beeinflusst] every student thinks that the market.NOM the government.ACC influences intended: "Every professor believes that the government influences the economy and every student believes that the market influences the government."

Still, I take the parallelism between the restrictions of Agree and the relation between DS and gapping to indicate that there exists an Agree relation between the DS-exhibiting DP and the gapping triggering head Foc^0 . I propose that DS is a type of [E]- deletion (Merchant 2001, 2004) and gapping licenses DS via Agree as in Aelbrecht (2010).

3.2. [E]-feature ellipsis

Before we turn to the derivation, let me outline the mechanics of [E]-feature deletion and define the [E]-feature involved in DS. Merchant (2001, 2004) proposed an analysis for clausal ellipsis like sluicing and fragment answers which employs the so called [E](llipsis) feature. This feature can optionally occur on a syntactic head. Its function is to instructs the post-syntax to leave the head's complement to be unpronounced, i.e. no vocabulary items will be inserted in the complement of the [E]-carrying head. Aelbrecht (2010) showed that the application of the [E]-feature is restricted by Agree: it has to be licensed by a c-commanding head, (14).



Merchant (2004) proposed that each ellipsis has a distinct [E]-feature with its own properties. [E]s differ on which heads can carry them and what feature on what head they have to agree with. This analysis introduces another type of [E]-feature: $[E_d]$. $[E_d]$ differs from sluicing-[E] in systematic ways along two dimensions: *locality* and *direction* of Agree. Sluicing-[E] triggers non-pronunciation of the element that is closest in its c-command domain, i.e., the complement. In contrast, DS-[E] agrees *upward* with the element that is *furthest away* from it (inside the same DP-phase), e.g. material in QP below D. $[E_d]$ is formally defined in (15) in a notation that combines Merchant's and Aelbrecht's. It is hosted on N⁰, has to be licensed by agreeing with Foc⁰, agrees upward, and instructs PF to leave a [–local] element unpronounced. Gapping in German is also analyzed as [E]-deletion: gapping is deletion of FinP (the complement of Foc⁰), licensed by agreeing with the coordinator &, (16).

3.3. Derivation

Determiner sharing in the subject position is derived as follows: inside DP, a noun carrying $[E_d]$ is merged. $[E_d]$ marks the most anti-local c-commanding element for non-pronunciation. I assume that quantifiers are hosted in functional projections between N and D (see e.g. Löbel 1990). D⁰, as the phase head, cannot be targeted by $[E_d]$. This accounts for the impossibility of personal pronouns to be shared in German, (18).





(18) *Meine Tochter ist 23 und meine Frau ist 32.my daughter is 23 and my wife is 32

The DP is merged into the verbal projection as the subject. The structure is built up until $Foc_{[E]}$ is merged. The gapping [E] on Foc^0 does two things: (i) it triggers ellipsis of its complement, FinP; (ii) it agrees with $[E_d]$ and thereby licenses the deletion in DP after-the-fact³. DS is only licit if it is licensed by agreeing with $[E_{gap}]$. Without this agreement, the derivation would crash because of an unlicensed $[E_d]$.



In a final step, the remnants have to escape the ellipsis site by evacuation movement to topic and focus positions (for different implementations of this exceptional movement see e.g. Temmerman 2013; Boone 2014; Weir 2014; Ortega-Santos et al. 2014; Thoms 2016).

(20) Step 3: Gapping and evacuation movement of the remnants



³ Note that $Foc_{[E]}$ cannot agree with $N_{[E]}$ directly, since the DP instantiates a phase barrier. However, there needs to be an independent mechanism that makes features of the noun accessible to the verbal domain, e.g. for purposes of subject-verb-agreement. I assume that whatever that mechanism is (feature percolation, feature sharing, etc.), it also makes $[E_d]$ accessible for agreement with heads in the verbal functional projection.

3.4. Deriving the properties

(21) lists again the generalizations about determiner sharing ellipsis that have been discussed above.

- (21) *Properties of DS*
 - a. DS is parasitic on gapping.
 - b. The shared element must be initial in its conjunct.
 - c. Deletion can never skip an element.
 - d. Not all Ds/Qs can be shared. The indefinite article and numerals seem to resist sharing.

Let us see how the present analysis can account for these observations. The parasitism of DS on gapping is captured straightforwardly: there is an Agree relation between Foc⁰ and N⁰/D⁰ which licenses DS only when gapping also occurs. By assumption, the lack of this agreement leads to ungrammaticality. The requirement of the shared determiner/quantifier to be in conjunct-initial position can be reduced to relativized Minimality: Other phrases can be defective interveners in the Agree relation between Foc⁰ and N⁰/D⁰. The no-skipping constraint can also be conceived of as a Minimality effect: $[E_d]$ on N⁰ looks for the most anti-local element in its phase. The most anti-local terminal node is considered the primary, most eligible, in a sense "closest", target. If the type of upward Agree that we assume for $[E_d]$ is subject to relativized Minimality, ignoring that target and moving on to another one can be considered a violation of Minimality.

As for the observation in (21-d), regarding the unclear empirical picture, not much more than tentative suggestions can be made. It seems to be the case that (bare cardinal) numerals and the indefinite article cannot be shared in the languages that have been investigated. A common property of these elements is that they occupy low positions in the nominal projection (e.g. Julien 2002). They might be so low that they are not anti-local enough in the sense of $[E_d]$ and thus can never be targeted.

4. Implications and extensions

If this analysis is on the right track, [E] could be more flexible than previously thought. [E]-feature analyses could be subject to???????? (22).

(22) Generalized [E]-ellipsis

Within phase ϕ , [E] on head H marks an element η in ϕ , η [α c-command, α local], for non-pronunciation.

The [E] feature can be parameterized: some ellipses target [+/+] elements (sluicing, gapping), others [/] elements (DS). An obvious question that arises is: are the other patterns [α c-command, α local] also possible?

German offers some puzzling patterns that seem affirmative. As mentioned above, cardinal numbers cannot be shared in DS on their own, (23-a). However, as part of a complex of modifiers, they can be, (23-b).

- (23) a. *Zwölf Mädchen machen Tee und zwölf Jungen machen Kaffee. twelve girls make tea and twelve boys make coffee
 - b. Alle zwölf Mädchen machen Tee und alle zwölf Jungen machen Kaffee. all twelve girls make tea and all twelve boys make coffee

This is reminiscent of the Principle of Minimal Compliance (Richards 1998; Preminger 2019), (24).

(24) Principle of Minimal Compliance (Preminger 2019 version) Once a probe P has successfully targeted a goal G, any other goal G that meets the same featural search criterion, and is dominated or c-commanded by G (= dominated by the mother of G), is accessible to subsequent probing by P irrespective of locality conditions.

For DS that means that low, local elements can only be elided *after* deletion of higher, non-local elements. Thus, in (23), $[E_d]$ can target "zwölf" in a second round of application, even though that element is usually too low.

The other possible pattern is that in a second round of application, [E] checks only DPs with the feature [+c-com, loc], i.e. it agrees *downward* with anti-local phrases. PPs may be such elements as their phase barrier classifies them as anti-local. Observe the contrast in (25). In (25-a), no deletion of a determiner occurred and the reading "movies about linguists" is not available, thus it cannot be present in the structure. (25-b) involves DS and makes the reading available.

5. Conclusion

Determiner sharing is a niche phenomenon but can potentially give us insights into the core properties of ellipses. It shows how two distinct ellipsis processes interact through syntactic licensing, and a potential instantiation of Minimal Compliance in ellipsis. If Agree can apply downward and upward (as argued for by Himmelreich 2017 e.g.), then this parameterization of [E] is entirely expected.

References

- Ackema, Peter & Kriszta Szendrői (2002). Determiner sharing as an instance of dependent ellipsis. *The Journal of Comparative Germanic Linguistics* 5, 3–34.
- Aelbrecht, Lobke (2010). The syntactic licensing of ellipsis. John Benjamins.
- Arregi, Karlos & Naiara Centeno (2005). Determiner sharing and cyclicity in wh-movement. Gess, Randall & Edward Rubin (eds.), *Theoretical and experimental approaches to Romance linguistics*, John Benjamins, Amsterdam, Philadelphia, 1–19.
- Baker, Mark & Livia Camargo Souza (2020). Agree without agreement: Switch-reference and reflexive voice in two Panoan languages. *Natural Language & Linguistic Theory* 1–62.

Boone, Enrico (2014). The syntax and licensing of gapping and fragments. Ph.D. thesis, University of Leiden.

- Centeno, Naiara (2012). *Gapping and determiner sharing in Spanish*. Ph.D. thesis, Universidad del País Vasco-Euskal Herriko Unibertsitatea.
- Chao, Wynn (1988). On ellipsis. Garland, New York.
- Chomsky, Noam (2000). Minimalist inquiries: The framework. Martin, Roger (ed.), *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, MIT Press, Cambridge, MA, 89–155.
- Chomsky, Noam (2001). Derivation by phase. Kenstowicz, Michael (ed.), *Ken Hale: A life in language*, MIT Press, Cambridge, MA, 1–52.
- Citko, Barbara (2006). Determiner sharing from a crosslinguistic perspective. *Linguistic Variation Yearbook* 6:1, 73–96.
- Coppock, Elizabeth (2001). Gapping: In defense of deletion. *Proceedings of the Chicago Linguistics Society*, vol. 37, 133–148.
- Frazier, Michael (2015). Morphological recoverability in Gapping. Ph.D. thesis, Northwestern University.
- Hartmann, Katharina (2000). *Right node raising and gapping: Interface conditions on prosodic deletion*. John Benjamins.

Himmelreich, Anke (2017). Case matching effects in Free Relatives and Parasitic Gaps: A Study on the Properties of Agree. Ph.D. thesis, Universität Leipzig.

- Johnson, Kyle (2000). Few dogs eat Whiskas or cats Alpo. UMOP 23, 59-82.
- Johnson, Kyle (2004). In search of the English middle field.
- Johnson, Kyle (2009). Gapping is not (VP-) ellipsis. Linguistic Inquiry 40:2, 289-328.
- Julien, Marit (2002). Determiners and word order in Scandinavian DPs. Studia Linguistica 56:3, 265–315.
- Kasai, Hironobu (2007). Multiple dominance in syntax. Ph.D. thesis, Harvard University.

Kennedy, Christopher (2001). In search of unpronounceable structure. Paper presented at "Workshop on Ellipsis in English and Japanese", Kyoto, Japan.

Kim, Jeong-Seok (2011). D-sharing. Studies in Modern Grammar 63, 21-46.

Kim, Jeong-Seok (2015). Quantifier sharing. Korean Journal of Linguistics 40:1, 67-85.

- Lin, Vivian (2002). *Coordination and sharing at the interfaces*. Ph.D. thesis, Massachusetts Institute of Technology, Cambridge, MA.
- Löbel, E. (1990). Q as a functional category. Bhatt, C., E. Löbel & C. M. Schmidt (eds.), *Syntactic phrase structure phenomena in noun phrases and sentences*, John Benjamins, Amsterdam, 133–158.
- López, Luis & Susanne Winkler (2003). Variation at the syntax-semantics interface: Evidence from gapping. Schwabe, Kerstin & Susanne Winkler (eds.), *The interfaces: Deriving and interpreting omitted structures*, John Benjamins, Amsterdam, 227–248.
- McCawley, James D (1993). Gapping with shared operators. *Annual Meeting of the Berkeley Linguistics Society*, vol. 19, 245–253.
- Merchant, Jason (2001). *The syntax of silence: Sluicing, islands, and the theory of ellipsis*. Oxford University Press. Merchant, Jason (2004). Fragments and ellipsis. *Linguistics and philosophy* 27:6, 661–738.

Ortega-Santos, Iván, Masaya Yoshida & Chizuru Nakao (2014). On ellipsis structures involving a wh-remnant and a non-wh-remnant simultaneously. *Lingua* 138, 55–85.

Potter, David, Michael Frazier & Masaya Yoshida (2017). A two-source hypothesis for gapping. *Natural Language & Linguistic Theory* 35:4, 1123–1160.

Preminger, Omer (2019). What the PCC tells us about "abstract" agreement, head movement, and locality. *Glossa:* A Journal of General Linguistics 4:1.

Reich, Ingo (2007). Toward a uniform analysis of short answers and gapping. Schwabe, Kerstin & Susanne Winkler (eds.), *On information structure: Meaning and form*, John Benjamins, Amsterdam, 467–484.

Repp, Sophie (2009). Negation in gapping. Oxford University Press, Oxford.

Richards, Norvin (1998). The principle of minimal compliance. Linguistic Inquiry 29:4, 599-629.

Rizzi, Luigi (1990). Relativized minimality. MIT Press.

Temmerman, Tanja (2013). The syntax of Dutch embedded fragment answers: On the PF-theory of islands and the *wh*/sluicing correlation. *Natural Language & Linguistic Theory* 31:1, 235–285.

Thoms, Gary (2016). Pseudogapping, parallelism, and the scope of focus. Syntax 19:3, 286-307.

Toosarvandani, Maziar (2013). Gapping is low coordination (plus VP-ellipsis): A reply to Johnson. Ms., University of California, Santa Cruz.

Weir, Andrew (2014). Fragments and clausal ellipsis. Ph.D. thesis, University of Massachusetts, Cambridge, MA.