Gauging sluicing

—

A re-evaluation of the PF approach on sluicing

February 2019

AUTHOR: R. S. S. J. Buurke
COURSE: Linguistic Theory (LTR023M10)
TEACHER: prof. dr. P. Hendriks

1 Introduction

The topic of this investigation is a linguistic phenomenon that has been termed sluicing (often attributed to Ross, 1969, for the first steps into analysis). Sluicing phenomena are a subset of the more general phenomenon ellipsis. Elliptical sentences are those in which there is an apparent mismatch between what is spoken and what the intended meaning is. In other words: the phonological realization of the utterance contains less information than what is necessary for interpretation of "typical" sentences as analyzed by general linguistic theory. Examples include the ones in (1). The commonly used term for that particular type of ellipsis is shown on the right side of each example.

(1)   a.   George plays the flute, and Valery ~~plays~~ the piano.   **Gapping**
      b.   George should pay homage, and Valery should ~~pay homage~~, too   **VP ellipsis**
      c.   George should pay tuition, because Valery has paid ~~tuition~~, too   **NP ellipsis**
      d.   **Question**: Who should pay homage?
           Answer: George ~~should pay homage~~.   **Answer ellipsis**
      e.   Someone plays an instrument, but I don't know who ~~plays an instrument~~.   **Sluicing**

Clearly, what these sentences have in common that there is unpronounced or "invisible" material, which does not change the meaning of the sentence when it is left out of the utterance. Sluicing pertains to sentences in which there is a remnant *wh*-element. All syntactic structure below the *wh*-element is "deleted", although whether this is the correct manner of explaining sluicing for all cases is dependent on what theoretical analysis of the phenomenon is adhered to. In any case, it can not be denied that there is a mismatch between the full information structure at the level of meaning and the overt realization of the sentence. The two approaches at discussion here are what can be called the PF (Phonological Form) approach, and it has as its main competitor the LF (Logical Form) approach[1].

Before proceeding to the elaboration of the PF and LF approaches, it must be noted that all elliptical sentences must fulfill two conditions. The first condition, *recoverability*, stipulates that in order for a sentence to be parsable during processing the meaning of the elements in the ellipsis site must be recoverable from the context. Note that the context can be linguistic as well as extralinguistic, which is an important stipulation as ellipsis can also occur (relatively far) across sentence boundaries. The *licensing* condition pertains to the set of syntactic structures for which ellipsis is allowed or disallowed. This is perhaps best illustrated by an example such as ((2); taken from the introductory chapter of Aelbrecht, 2010). In the first sentence it is not possible to elide the VP in the non-finite clause, but it is possible to do so in the second sentence with the finite clause. This is but one example of how ellipsis is restricted by syntactic conditions besides semantic ones. It is worth noting that both recoverability and licensing have been topics of investigation for countless studies, but they are not often combined in one study for a particular type of ellipsis. The main reason for this is that either condition seems to require notably different approaches, and it has as a clear downside that the status quo in ellipsis research is a state of non-convergence.

(2)   a.   *Max having arrived and Morgan not having ~~arrived~~, we decided to wait.

---

[1] It is worth noting that these on a more abstract level actually represent a similar approach, i.e. one that presumes that there is missing structure. There are also approaches that assume that there is no missing structure, but these are not under scrutiny here. The reader can consult works such as i.a. Culicover & Jackendoff (2005) for analyses of that kind.

b. Max had arrived, but Morgan had not ~~arrived~~, so we decided to wait.

1.1 The PF approach to sluicing

The PF approach, as does the LF one, can and should be attributed to the collective effort of many, but given its recent revival by Merchant (2001) it seems fair to attribute it as such here. It can be summarized in (overly) general terms as assuming full syntactic structure in the ellipsis site, which is corroborated by evidence such as sensitivity to morphological Case-marking of the *wh*-element in e.g. German (see (3); examples from Merchant, 2005). The *wh*-element is correctly inflected for accusative case, which is presumed to be syntactically fulfilled before the *wh*-element moves upwards in the structure. This is consequently taken as a clear indication that there must be *at least some* syntactic structure within the ellipsis site, and that part of it is consequently simply unpronounced after being stripped away at PF level.

(3) Er will   jemandem loben aber sie   wissen nicht *wer/wen/*wem*
     He wants someone   flatter but they know   not   *who.NOM/who.ACC/*who.DAT*
     er ~~loben~~ ~~will~~
     he ~~flatter~~ ~~wants~~
     "He wants to flatter someone, but they do not know *who* ~~he wants to flatter~~"

While the PF approach seems highly flexible, and therefore attractive for linguistic theory, problems still arise if it is to be used as a general explanation of ellipsis. Specifically, sentences with scopal elements such as (4) are problematic in terms of semantic scope. The non-elliptical variant clearly has a different meaning than the elliptical one: in the non-elliptical version it seems that the DP refers to another horse than the second DP. The elliptical version, however, more readily allows for an interpretation in which there is only one horse. This semantic alternation is not expressed if the syntactic structure is considered to be the same until PF.

(4) Een paard galoppeert en   ~~een paard~~ hinnikt.   **Dutch**
     A   horse gallops   and ~~a horse~~   nickers.

1.2 The LF approach to sluicing

The LF approach tackles ellipsis and sluicing in different manner. Whereas the PF approach assumes that structure is deleted, the LF approach typically assumes a reconstruction operation. There are various forms in which this has been cast in shape, but one prominent approach is that of LF-copy (see i.a. Chung et al., 1995). It is assumed that there is a null element in the sentence upon which the antecedent is copied at LF level, so that the correct interpretation follows (see example 5). Note that there are two obvious options here: to either assume that there is a single terminal upon which all the information is copied, or that there are numerous elements. The preference for either is not relevant for the purposes of this paper, but it is worth noting how different the analyses under LF approaches can be.

(5) John eats bread, but I don't know why [$_\alpha$ *e*].

The semantic information of the antecedent *John eats bread* is copied unto the empty category *e* by some (covert) LF operation α. Different from the PF approach, then, there is no need for full syntactic structure at PF level. Clearly, evidence such as (3) needs an alternative explanation if

such an approach is to be opted for, because there is no reason to expect such empirical evidence then, but it would at the same time be easier to accommodate facts such as (4). It quickly becomes clear that neither the PF nor LF approach will suffice for all ellipsis phenomena, but both seem to be valid frameworks for analyzing sluicing. It is, however, preferable to delineate whether one approach is in fact better than the other for more complex situations, as these approaches may seem like two side of the same coin, but do make different predictions.

The PF approach to ellipsis seems to be the most attractive one for the case of sluicing, especially since there is empirical evidence for Case assignment to *wh*-elements. The LF approach is not impossible under this empirical evidence, but it lacks an incentive for why Case assignment happens if the relevant operations happen at LF level instead of narrow syntax. However, this reasoning is not sufficient to settle the debate. There are numerous problems still of relevance to the PF approach, even for specific cases of sluicing. The structure of this paper is therefore as follows. Section 2 as a whole covers several points of friction for the PF approach from Dutch data. Section 2.1 briefly notes a problem of word order in sluiced sentences. Section 2.2 poses cases of multiple sluicing and Preposition-stranding, which are difficult to explain in an PF approach given the facts of *wh*-movement in Dutch. Section 2.3 covers another specific problem for Merchant's (2001) analysis: Dutch has R-pronouns that behave in such a way that the movement required for sluicing under a PF approach results in grammatical asymmetry in the structure before and after movement. In Section 3 a rough sketch of an analysis is given to account for some of the problems posed by Dutch data.

2   Re-evaluating the PF approach: Peculiarities of Dutch

2.1   Non-rigid word order

Dutch is a West Germanic language spoken by at least 16 million people in het Netherlands (according to Ethnologue's data). The word order is relatively flexible, with main clauses having SVO word order under most (verb second) analyses, and subordinate clauses having SOV worder. This difference in word order between clauses means that there must be some way to account for the lack of exact identity in surface structure in sentences such as ((6); taken from Hoeksema, 2014). This problem can likely be ameliorated[2] without significant reworking of the PF approach, but no full-fledged attempt at doing so is explicitly given here as it can for now be abstracted away from. Nonetheless, it is a first indication of how reliance on strict form identity is not always feasible, even on the basis of simple empirical facts.

(6) Jan wilde iets   zeggen, maar we wisten niet wat ~~Jan~~ ~~zeggen wilde~~
     John wanted something say,   but we knew not what ~~John say~~   ~~wanted~~
     "John wanted to say something, but we didn't know what."

2.2   Multiple sluicing and P-stranding

(7) Iemand   heeft iets   gezien, maar ik weet niet wie wat
     Someone has   something seen, but   I know not who what
     "Someone saw something, but I don't know who what."

---

[2] It is also worth noting that the word order of verb clusters in Dutch dialects can differ significantly. To my knowledge, tripartite verb clusters (e.g. finite auxiliary verb – infinitival modal verb – infinitival main verb) are accounted for with all possible permutations across the Netherlands. The inquisitive reader may inspect this in greater detail by consulting the DynaSAND database by Barbiers et al. (2006).

(8) Iemand   zoende met iemand,   maar ik weet niet wie [?/✓] (met) wie ~~zoende~~
    Someone kissed with someone, but   I know not who [?/✓] (with) who ~~kissed~~
    "Someone kissed someone, but I don't know who whom."

Not only in terms of word order, but also for sluicing in general terms there seems to be more flexibility in Dutch. Observe examples ((7); from Merchant (2001). p. 111) and (8). These cases of multiple sluicing would be ungrammatical in English (e.g. *Someone kissed someone, but I don't know who whom*), but it is grammatical in Dutch. This is an interesting finding, because the PF approach assumes that the remnant *wh*-element is fronted into CP, but Dutch does not accommodate multiple *wh*-fronting (e.g. *Wie heeft wat gezien?* → **Wie wat heeft gezien?*). Naturally, Merchant (2001) collected data on numerous languages with these conflicting properties, but he argues that allowing multiple *wh*-fronting is not a strict requirement for multiple sluicing on the basis of the fact that in English multiple sluicing seems to be marginal, and restricted to specific interpretational environments. He admits, however, that similar cases are not ruled out for the languages at discussion there, which includes Dutch. All in all, the argumentation against stipulating multiple *wh*-fronting before multiple sluicing seems thin at best, and must be better accounted for by the PF approach.

The Dutch example in (8) is doubly interesting, because it also seemingly violates one of the two generalizations Merchant himself puts forth. The first generalization pertains to cases such as the aforementioned (3), and in general terms states that sluiced *wh*-element must bear the case its antecedent requires. The second generalization pertains to preposition-stranding (P-stranding), and is stated as in (9).

(9) *Form-identity generalization II: Preposition-stranding*
    Any language *L* will allow preposition stranding under sluicing iff *L* allows preposition stranding under regular *wh*-movement.

Simply put, the prediction is that languages such as Dutch, which do in fact not allow P-stranding under "normal" *wh*-movement also do not allow for preposition stranding under sluicing. Sentences such as Merchant's example **Wie heeft zij mee gesproken?*[3], or similarly **Waar heb jij gepraat over?* as opposed to *Waarover heb jij gepraat?* (taken from Zwarts, 1997), show that P-stranding is indeed not allowed under typical *wh*-movement. Interestingly, however, (8) shows that a preposition can in fact still be stranded under sluicing in Dutch (as opposed to i.a. German, for which P-stranding under normal *wh*-movement is also disallowed). Merchant notes that 6 out of 10 participants accepted a sufficiently comparable sentence (i.e. *Anna heeft met iemand gesproken, maar ik weet niet met wie*) without the preposition, and all participants accepted the version with the preposition. The evidence is therefore strongest that Dutch does *not* follow the generalization in (9).

2.3   R-pronouns

Hoeksema (2014) notes another peculiarity in terms of P-stranding for Dutch. R-pronouns in Dutch are a well attested but unique phenomenon. Observe example ((10); taken from Bouma, 2000). The R-pronouns and their complementary prepositions are lexical items that can be used separately, but syntactically they are restricted when they occur together. The preposition can not precede the R-pronoun, for example (**Kim heeft aan er/hier/daar gedacht*).

---

[3] It is to be noted that in Merchant's work this example is actually considered with a differing degree of acceptability across participants, but it is never fully accepted by all participants. Moreover, as a native speaker of Dutch, this sentence does indeed seem ungrammatical.

(10)   Kim heeft eraan/hieraan/daaraan   gedacht
            Kim has   there+on/here+on/there+on thought
            "Kim has thought about this."

More importantly for the case of sluicing is the fact that R-pronouns can be used in sluicing, but (seemingly) only through pied piping (10a), as Hoeksema observes. This is not the whole story, however, as (11b) clearly shows sluicing without pied piping as well. More crucial for the feasibility of the PF approach, however, is the fact that sentences such as (11bc) have (un)grammatical counterparts in the derivation. For (11b) the source must surely be *Marie kijkt ergens naar, maar ik weet niet wat zij naar kijkt*, which is ungrammatical. In a similar vein, for (11c), which is in fact ungrammatical, has a grammatical source before the sluicing operations: *Marie kijkt ergens naar, maar ik weet niet waar zij naar kijkt*.[4] The intriguing asymmetry in grammaticality of (11bc) is not easily explained by the PF approach as it currently stands. Hoeksema himself proposes an account of features and agreement, i.e. that the remnant must inherit the agreement features of the nonsluiced correlate (in this case *naar*). He proposes that the feature [R] is not an agreement feature, and that concordantly explains the difference between (11b)'s *wat* (presumed [-R]) and (11c)'s *waar* (presumed [+R]). Whether to agree or not with this proposal is left to the reader, but the point to be made here is that again the strict isomorphism assumption presents a true problem for the PF approach. More flexibility is required in order to account for the syntax of Dutch.

(11)   a.   Marie kijkt ergens   naar, maar ik weet niet waarnaar
           Marie looks somewhere at,   but   I know not whereat
           "Marie looks at something, but I don't know what."
      b.   Marie kijkt ergens   naar, maar ik weet niet wat
           Marie looks somewhere at,   but   I know not what
      c.   *Marie kijkt ergens   naar, maar ik weet niet waar
           *Marie looks somewhere at,   but   I know not what

3   A suggestion for the PF approach

The PF approach as proposed by Merchant and others, at it seems, relies too heavily on form identity between the antecedent and ellipsis site. Much like the problem noted in (4), this reliance on strict syntactic structure becomes problematic as soon as (1) there is structure that cannot be deleted without a significant change in the most salient meaning, or (2) when syntactic structure itself becomes variant *without* a significant change in meaning, such as with the non-rigid word order in Dutch. In conclusion, while the isomorphism approach has clear empirical evidence for it, it can not be upheld across all types of ellipsis as it stands. In fact, even for sluicing there are problems to account for convincingly (which is regrettable, as many vouch for this approach for analyzing sluicing).

      The way forward from these observations seems unpromising. On the one hand, there is the empirical evidence that some internal syntax is indeed relevant within the ellipsis domain, which is something ostensibly ignored by the LF approach. This particular conundrum can not be "ignored", because the empirical evidence pertains to *exactly* the phenomenon at discussion:

---

[4] Note that *waar* is both a *wh*-element and an "R-word", which explains why it may escape the non-P-stranding in *wh*-movement property of Dutch in specific cases (compare *Waar heb je over gepraat?* with *Met wie heb je gepraat?*).

sluicing (especially in German). The PF approach, however, has its own flaws as an alternative. It may be able to cope with a considerable amount of crosslinguistic data, and there is no denying that Merchant made significant progress with his 2001 work, but when looking in more detail at the wide range of phenomena that are all still considered to be sluicing it seems that there is too much variety to be captured. In order to salvage the PF approach, some considerations are as follows.

One option is to assume that there is no (or non-typical) *wh*-movement involved in sluicing. This may seem counter-intuitive, as it has been analyzed as such from early on in the collective effort, but there are some indications that this may be the case. Hoeksema (2014) notes that the asymmetry between German and Dutch (and English as well) in P-stranding is striking, since there is no reason to assume these differences as the *wh*-movement in the languages is assumed identical. He suggests to take these data as a strong evidence that sluicing actually has a different source than *wh*-movement. This is an interesting idea worth pursuing. Much like Merchant (2001) argued for a pluralistic view on islandhood after noting that specific types of sluicing are not sensitive to islands, it can be argued that this crosslinguistic difference in sluicing pertains to different phenomena with a unique syntactic nature. To specifically deal with the problems raised by the asymmetry of P-stranding between German and Dutch, which is arguably the most significant empirical evidence to be resolved, one can conjecture that *wh*-elements and prepositions in these languages may be fundamentally different. As a consequence, they can also be assumed to have a different set of features, and under a feature-based approach to movement (as opted for in Hoeksema, 2014, for the case of R-pronouns) they can then be classified and treated as elements that do not adhere to "typical" *wh*-movement.

The questions that immediately follow from these assumptions are then (1) what type of movement actually applies to these non-typical *wh*-elements in Dutch, and (2) what makes these typically assumed *wh*-elements non-typical *wh*-elements. The first question cannot be fully addressed in the remainder of this paper, but given a feature-based approach one might look for a solution in the order of postulating a dichotomous *wh*-feature [-/+ P-stranding], which is assigned to both *wh*-elements and prepositions. [5] Both the preposition and *wh*-element therefore have a certain value for [P-stranding]. Through local agreement checking, specific combinations enforce pied piping, while in other cases P-stranding is possible. Assume that the latter case is only when both the *wh*-element and the preposition have [+ P-stranding], which can be taken as the strong version of the feature. All other combinations result in a combination that is "not strong" enough to allow something as flexible as P-stranding, so pied piping occurs. This system can account for the variation that is found between German and Dutch, with parsimonious changes to the overall PF approach, if there is evidence that features of *wh*-elements and prepositions differ between the two languages.

Such evidence for lexical-featural differences between *wh*-elements and prepositions in Dutch and German can be postulated. The most obvious difference between the syntactic behavior of these items is that in German they are subject to Case-marking, while this is not the case for Dutch. In particular, as noted on multiple counts, *wh*-elements in German are Case-marked as opposed to the situation in Dutch. Similarly, it is well known that prepositions in German are subject to Case effects as well, as there are sets of prepositions that determine case on the dependent phrase. For example: *bis* ("to"), *durch* ("through"), and *gegen* ("against") always impose accusative Case, while e.g. *aus* ("out/from") and *wegen* ("because of") respectively do so with dative and genitive Case. In fact, there is a set of prepositions that have two-way possi-

---

[5] Note that in the case of *waar* two different lexical items must be assumed, one for the preposition and one as a locative adverb.

bilities of assigning Case as well. In modern Dutch none of these effects exist anymore (except in certain fixed expressions such as *op den duur* "in the long run"). The suggestion here is that this difference is a crucial one[6] between the two languages, as is reflected in different values for [P-stranding], and two types of *wh*-movement: one allowing P-stranding and one not. The German elements in sluicing are presumed to have [- P-stranding] values, while those in Dutch have [+ P-stranding].

The rough sketch of the analysis above crucially relies on a notion of a [P-stranding] feature, which links Case-marking to the ability to P-strand. Admittedly, the naming of the feature is perhaps somewhat ad hoc. In order for the analysis to be more convincing, more research is needed into what this particular feature pertains to on a more abstract level. A possible line of investigation is to determine what exactly the nature of P-stranding is in the first place. It is a relative rare phenomenon to the best of my knowledge, and only attested in a handful of languages (*mostly* within the Germanic language family, but even then it seems rare). It is therefore worth looking for German dialect data which portrays the permission of R-pronouns or P-stranding, as then a direct comparison with Standard German can be more readily made. The Wikipedia page on P-stranding states examples such as (12a) for Standard German, and (12b) for unspecified dialects of German. Regrettably there are no citations to follow through on. Nonetheless, investigation of such data is very useful, as the analysis above can then be either rejected or continued by empirical evidence.

(12) a. Ich kann mir *davon* nichts leisten
          I   can me thereof nothing afford
          "I can't afford any of those."

      b. Ich kann mir *da* nichts *von* leisten
          I   can me there nothing of afford
          "I can't afford any of those."

4   References

Aelbrecht, L. (2010). *The syntactic licensing of ellipsis*. John Benjamins Publishing.

Barbiers, S. et al (2006). *Dynamische Syntactische Atlas van de Nederlandse Dialecten (DynaSAND)*. Amsterdam, Meertens Instituut. URL: http://www.meertens.knaw.nl/sand/.

Bouma, G. (2000). Argument realization and Dutch R-pronouns: Solving Bech's problem without movement or deletion. R. Cann, C. Grover & P. Miller (red.), *Grammatical Interfaces in HPSG*, Stanford, CA: CSLI Publications, 51-76.

Chung, S., Ladusaw, W., & McCloskey, J. (1995). Sluicing and logical form. *Natural language semantics, 3*(3), 239-282.

Culicover, P. W., Jackendoff, R. S., & Jackendoff, R. (2005). *Simpler syntax*. Oxford University Press on Demand.

Hoeksema, J. (2014). Sluicing in Dutch: A Problem for PF-deletion approaches. *SKASE Journal of Theoretical Linguistics, 11*(2), 30-42.

Merchant, J. (2001). *The syntax of silence: Sluicing, islands, and the theory of ellipsis*. Oxford

---

[6] As a careful suggestion, it may also be the case that both *wh*-elements and prepositions are more syntactically free in Dutch. Especially for the latter group it can be deliberated, because of the existence and apparent uniqueness of R-pronouns in Dutch.

University Press on Demand.

Merchant, J. (2005). Fragments and ellipsis. *Linguistics and philosophy, 27*(6), 661-738.

Ross, J. (1969). "Guess who?", in Robert I. Binnick, Alice Davison, Georgia M. Green, and Jerry L. Morgan (eds.), *Papers from the 5th Regional Meeting of the Chicago Linguistic Society*. Chicago: CLS, 252–86.

Zwarts, J. (1997). Complex prepositions and P-stranding in Dutch. *Linguistics, 35*(6), 1091-1112.