

of HPSG research where the main emphasis is on writing an explicit grammar fragment that is constraint-based and surface-oriented. This type of tension is perhaps not easy to overcome, but it seems useful (for researchers working in different grammatical theories) to at least recognize (and appreciate) the existence of these different theoretical orientations tied to different approaches.

4.2.3 Ellipsis

Analyses of major ellipsis phenomena in HPSG and CG share the same essential idea that ellipsis is a form of anaphora, without any invisible hierarchically structured representations corresponding to the ‘elided’ expression. See Chapter 20 and Ginzburg & Miller (2019) for an overview of approaches to ellipsis in HPSG.

Recent analyses of ellipsis in HPSG (Ginzburg & Sag 2000; Miller 2014) make heavy use of the notion of ‘constructions’ adopted from Construction Grammar (this idea is even borrowed into some of the CG analyses of ellipsis such as Jacobson (2016)). Many ellipsis phenomena are known to exhibit some form of ‘syntactic sensitivity’ (Kennedy 2003; Chung 2013; Yoshida et al. 2015), and this fact has long been taken to provide strong evidence for the ‘covert structure’ analyses of ellipsis popular in the mainstream syntactic literature (Merchant 2019).

Some of the early works on ellipsis in CG include Hendriks (1995a) and Morrill & Merenciano (1996). Morrill & Merenciano (1996) in particular show how hypothetical reasoning in TLCG allows treatments of important properties of ellipsis phenomena such as strict/sloppy ambiguity and scope ambiguity of elided quantifiers in VP ellipsis. Jäger (2005) integrates these earlier works with a general theory of anaphora in TLCG, incorporating the key empirical analyses of pronominal anaphora by Jacobson (1999; 2000). Jacobson’s 1998; 2008 analysis of Antecedent-Contained Ellipsis is also important. Antecedent-Contained Ellipsis is often taken to provide a strong piece of evidence for the representational analysis of ellipsis in mainstream generative syntax. Jacobson offers a counterproposal to this standard analysis that completely dispenses with covert structural representations. While the above works from the 90s have mostly focused on VP ellipsis, recent developments in the CG literature, including Barker (2013) on sluicing, Jacobson (2016) on fragment answers and Kubota & Levine (2017) on pseudogapping, considerably extended the empirical coverage of the same line of analysis.

The relationship between recent CG analyses of ellipsis and HPSG counterparts seems to be similar to the situation with competing analyses on coordination. Both Barker (2013) and Kubota & Levine (2017) exploit hypothetical reasoning to treat the antecedent of an elided material as a ‘constituent’ with full-

fledged semantic interpretation at an abstract combinatoric component of syntax. The anaphoric mechanism can then refer to both the syntactic and semantic information of the antecedent expression to capture syntactic sensitivity observed in ellipsis phenomena, without the need to posit hierarchical representations at the ellipsis site. Due to its surface-oriented nature, HPSG is not equipped with an analogous abstract combinatoric component that assigns ‘constituent’ statuses to expressions that do not (in any obvious sense) correspond to constituents in the surface representation. In HPSG, the major work in restricting the possible form of ellipsis is instead taken over by constructional schemata, which can encode syntactic information of the antecedent to capture connectivity effects, as is done, for example, with the use of the SAL-UTT feature in Ginzburg & Sag’s (2000) analysis of sluicing (cf. Chapter 20).

Kubota & Levine (2020: Chapter 8) extend Kubota & Levine’s (2017) approach further to the treatment of interactions between VP ellipsis and extraction, which has often been invoked in the earlier literature (in particular, Kennedy (2003)) as providing crucial evidence for covert structure analysis of ellipsis phenomena (see also Jacobson (2019) for a related proposal, cast in a variant of CCG). At least some of the counterproposals that Kubota & Levine formulate in their argument against the covert structure analysis seem to be directly compatible with the HPSG approach to ellipsis, but (so far as I am aware) no concrete analysis of extraction/ellipsis interaction currently exists in the HPSG literature.

4.2.4 Mismatches in right-node raising

While RNR has mostly been discussed in connection to coordination in the literature, it is well-known that RNR is not necessarily restricted to coordination environments (see, for example, Wilder (2019) for a recent overview). Moreover, it has recently been pointed out by Abeillé et al. (2016) that RNR in French admit certain types of syntactic mismatch between the RNR’ed material and the selecting head in a non-adjacent conjunct. The current literature seems to agree that RNR is not a unitary phenomenon, and that at least some type of RNR should be treated via a mechanism of surface ellipsis, which could be modelled as deletion of syntactic (or prosodic) objects or via some sort of anaphoric mechanism (cf. Chapter 20, Chaves (2014), Kubota & Levine (2017)).

One point that is worth emphasizing in this connection is that while the ‘NCC as constituent coordination’ analysis of RNR in CG discussed in section 2.4.1 (major evidence for which comes from the interactions between various sorts of scopal operators and RNR as noted in section 4.2.1) is well-known, neither CCG nor TLCG is by any means committed to the idea that *all* instances of RNR should

be analyzed this way. In fact, given the extensive evidence for the non-unitary nature of RNR reviewed in Chaves (2014) and the syntactic mismatch data from French offered by Abeillé et al. (2016), it seems that a comprehensive account of RNR in CG (or, for that matter, in any other theory) would need to recognize the non-unitary nature of the phenomenon, along lines similar to Chaves's (2014) recent proposal in HPSG. While there is currently no detailed comprehensive account of RNR along these lines in the CG literature, there does not seem to be any inherent obstacle for formulating such an account.

4.3 Binding

Empirical phenomena that have traditionally been analyzed by means of Binding Theory (both in the transformational and the nontransformational literature; cf. Chapter ??) potentially pose a major challenge to the 'non-representational' view of the syntax-semantics interface common to most variants of CG. The HPSG Binding Theory in Pollard & Sag (1994) captures Principles A and B at the level of argument structure, while Principle C makes reference to the configurational structure (i.e. the feature-structure encoding of the constituent geometry). The status of Principle C itself is controversial to begin with, but if this condition needs to be stated in the syntax, it would possibly constitute one of the the greatest challenges to CG-based theories of syntax, since, unlike phrase structure trees, the proof trees in CG are not objects that a principle of grammar can directly refer to.

While there seems to be no consensus in the current CG literature on how the standard binding theoretic facts are to be accounted for, there are some important ideas and proposals in the wider literature of CG-based syntax (broadly construed to include work in the Montague Grammar tradition). First, as for Principle A, there is a recurrent suggestion in the literature that these effects can (and should) be captured simply via strictly lexical properties of reflexive pronouns (e.g. Szabolcsi (1992); see Buring (2005) for a concise summary). For example, for a reflexive in the direct object position of a transitive verb bound by the subject NP, the following type assignment (where the reflexive pronoun first takes a transitive verb and then the subject NP as arguments) suffices to capture its bound status:

$$(49) \quad \text{himself}; \lambda R \lambda x. R(x)(x); \text{NP} \setminus ((\text{NP} \setminus \text{S}) / \text{NP}) \setminus \text{S}$$

This approach is attractively simple, but there are at least two things to keep in mind, in order to make it a complete analysis of Principle A in CG. First, while

this lexical treatment of reflexive binding may at first sight appear to capture the locality of binding quite nicely, CG's flexible syntax potentially overgenerates unacceptable long-distance binding readings for (English) reflexives. Since right-node raising can take place across clause boundaries, it seems necessary to assume that hypothetical reasoning for the Lambek-slash (or a chain of function composition that has the same effect in CCG) can generally take place across clause boundaries. But then, expressions such as *thinks Bill hates* can be assigned the same syntactic type (i.e. $(NP \backslash S) / NP$) as lexical transitive verbs, overgenerating non-local binding of a reflexive from a subject NP in the upstairs clause (**John_i thinks Bill hates himself_i*).

In order to prevent this situation while still retaining the lexical analysis of reflexivization sketched above, some kind of restriction needs to be imposed as to the way in which reflexives combine with other linguistic expressions. One possibility would be to distinguish between lexical transitive verbs and derived transitive verb-like expressions by positing different 'modes of composition' in the two cases in a 'multi-modal' version of CG.

The other issue is that the lexical entry in (49) needs to be generalized to cover all cases in which a reflexive is bound by an argument that is higher in the obliqueness hierarchy. This amounts to positing a polymorphic lexical entry for the reflexive. The use of polymorphism is not itself a problem, since it is needed in other places in the grammar (such as coordination) anyway. But this account would amount to capturing the Principle A effects purely in terms of the specific lexical encoding for reflexive pronouns (unlike the treatment in HPSG which explicitly refers to the obliqueness hierarchy).

While Principle A effects are in principle amenable to a relatively simple lexical treatment along lines sketched above, Principle B turns out to be considerably more challenging for CG. To see this point, note that the lexical analysis of reflexives sketched above crucially relies on the fact that the constraint associated with reflexives corresponds to a straightforward semantic effect of variable binding. Pronouns instead require *disjointness* of reference from less oblique co-arguments, but such an effect cannot be captured by simply specifying some appropriate lambda term as the semantic translation for the pronoun.

To date, the most detailed treatment of Principle B effects in CG that explicitly addresses this difficulty is the proposal by Jacobson (2007), formulated in a version of CCG (Steedman (1997) proposes a different approach to binding, which will be briefly discussed at the end of this section). The key idea of Jacobson's account of Principle B effects is that NPs are divided by a binary-valued feature $\pm p$, with pronouns marked $NP[+p]$ and all other NPs $NP[-p]$. In all lexical entries of