

## "Towards a unified account of ellipsis – Syntax as time-linear building of semantic representations"

*Ellipsis* is a phenomenon that continues to resist a uniform basis for explanation, with some fragments reported as subject only to pragmatic explanation (Stainton & Elugardo 2004), some requiring a strictly syntactic basis for explanation in virtue of island sensitivity (*antecedent-contained ellipsis* – Hornstein 1994 and many others), some requiring a complex of syntactic, semantic and pragmatic constraints (*VP ellipsis* – see Kehler’s 2002 demonstration of binding sensitivity to discourse constraints), and a whole range of non-standard fragments being said to be subject to different forms of analysis to reflect varying subtle formal/semantic differences (Cooper & Ginzburg 2004, Purver 2004, Fernandez 2006, Ginzburg et al. 2007). The various protagonists continue to disagree as to whether such constraints are explicable solely in terms of some pairing between suitably rich surface syntactic analysis of expressions and semantic interpretation, or require explicit invocation of a covert level of representation (in movement frameworks, constituting a level of LF) (see, for example, Stanley 2000, Dalrymple 1991 and subsequently, Ginzburg & Cooper 2004). In consequence, ellipsis itself is taken to be heterogeneous, notwithstanding the robust informal intuition that ellipsis is quite simply the phenomenon where morphological input is not needed because the context fixes the interpretation directly.

This paper argues that a unitary basis for characterising elliptical phenomena as indeed context-dependent interpretation fixing becomes possible if a grammar formalism is adopted in which “syntax” is defined as the progressive building up of representations of content to reflect real-time processing. According to such an account, only one level of representation is required, that which constitutes the interface mediating between surface-string and semantic interpretation, with no level of structure corresponding to the string itself. The framework in which the account will be given is that of *Dynamic Syntax* (Kempson et al 2001, Cann et al 2005, 2007) in which “syntax” is defined as mechanisms that induce construction of partial representations of content as progressively established for a string on a time-linear basis reflecting parsing. The unifying basis of the account involves defining *context* as equally reflecting the dynamics of parsing, i.e., as a *record* of constructed structure, parsing actions that induced such structure, and the string itself. With this richer concept of context, various types of *ellipsis* can be characterised as different types of context-dependence: dependence on context that licenses replication of content or replication of structure-building actions, as well as use of structure in context as the point of departure for the construction process induced by a string. The account to be given will include *VP ellipsis*, *bare argument fragments*, *gapping*, *antecedent-contained ellipsis*, *clarificatory fragments* (acknowledging, querying & correcting), hence displaying how the account applies equally to phenomena otherwise taken to be exclusively pragmatic, exclusively semantic, exclusively syntactic, or some combination of all three. The data to be modelled includes (1)-(6), notably extending to dialogue-based phenomena and not simply sentences in isolation:

- (1) John hurt himself, and Harry (did) too.
- (2) John interviewed everyone that Harry did.
- (3) John interviewed Mandela, and Tom Clinton.
- (4) (at a ticket booth): A: A single to London.
- (5) A: Who did John hurt? B: Himself. A: No, Tom.
- (6) A: McWhirter... B: The guy from London? A: Mhm, he sent his apologies.

In *Dynamic Syntax*, the core formalism is provided by *LOFT* (Logic of Finite Trees – Blackburn & Meyer-Viol 1994, a modal logic for finite trees), which is used to define a concept of tree growth, hence of actions inducing such growth. The building up of representations of content is partly top-down, partly bottom-up, with emergent tree-structures constituting predicate-argument arrays, each node decorated with content formulae and matching type decorations. *Underspecification* is a core aspect of the model. In particular, in addition to content or type underspecification, there is also underspecification of tree relations. Update involves strictly monotonic information growth in any single sequence that builds a tree: any dimension of tree decoration initially introduced as underspecified has an associated constraint to be enriched that drives the goal-directed process of update. All constraints must be satisfied if the construction process is to lead to a successful outcome. Structure is built from lexical and general computational actions, both defined in the same terms of tree growth. *Computational* actions provide top-down control on overall tree configuration, governing processes such as introducing/updating tree structure, while *lexical* actions provide more lexicon-specific procedures, though expressed in exactly the same tree-growth terms. *Context*, then, is defined in terms of the same attributes, keeping a record of the string processed, structure that results, and actions that led to that structure, so that there is not merely a representation of content

assigned to a string (if the result of some linguistic processing) but also a record of how that content came to be established. *Production* involves the very same tree-growth mechanisms subject to only the addition of a speaker's *goal tree* that represents an intended message. All the production steps have to be checked for commensurability relative to the constraints of monotonic tree-growth until the goal tree is achieved. The tight correlation between parsing and production is what enables straightforward modelling of parsing/production shifts in dialogue.

Elliptical fragments then constitute a (lexically) defined license for recovery of information from context, involving the following options: (i) recovering a formula value, hence identity of content (*strict VP ellipsis*), (ii) recovering a sequence of actions and reapplying them relative to the new context provided by the fragment (*sloppy VP ellipsis/stripping*), both illustrated by (1), (iii) using structure in context as the point of departure for whatever actions the fragment induces (e.g. *question-answer pairs*, *clarifications* or *acknowledgements*, as in (5)-(6)). *Antecedent-contained ellipsis*, (2), constitutes cases where, given the context provided by the main clause plus the relative pronoun, the only sequence of actions selectable from context are actions provided by the verb. *Gapping* similarly, (3), except that in this case, it is the ordered pair of NPs which constitutes the input to the recovery from context. *Indexical fragment* cases, (4), involve representations without linguistic input. Requests for *clarification*, possibly incrementally provided as in (6), are fragments where the goal of the speaker may be less than that of a full propositional tree but rather of some sub-type, so that all the speaker is trying to do is replicate some subgoal of his interlocutor. In coordinative discourse, where an interlocutor is processing some clarification request, even the parsing process may involve checking for commensurability with some goal tree, namely, the goal provided by the immediately preceding production task, so that in the cases where *correction* is needed as in (5), the correction the initial speaker provides is defined relative to their immediately preceding goal tree, rather than as some nonmonotonic development of the parse tree got from the mistaken clarification request. The success of these accounts, in particular in cases involving the switch between parsing/production roles that is diagnostic of dialogue, notably rests on the tight coordination of parsing and production implied by the Dynamic Syntax mechanisms (Cann et al. 2007). The conclusion to be drawn from this integrated account of ellipsis is that articulation of the syntax/semantics interface needs to make essential reference not merely to some level of covert representation, but rather to the dynamics of how such representations are built up in real-time.

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