Overview

Research Topic: coordination and syntactic sharing/factorizing

- Factorizing at the left edge (non-constituent coordinations, conjunction reductions, Across-The-Board (ATB) constructions)
- Factorizing at the right edge (Right-Node-Raising (RNR) constructions)
- Factorizing at the center (gapping)

Interactions with ellipsis: ellipsis as the favored analysis of such constructions (Cop-pock (2001); Ha (2007); Abeillé and Mouret (2010); Barros and Vincente (2011); Salzmann (2012); Bruening (2015))

Goal #1: to compare various analyses

- ellipsis
- multidominance and/or ‘parallel’ movement
- conclusion: none of the analyses is fully satisfactory, or both are...the problems are elsewhere

Goal #2: new perspectives on such constructions

- the role of prosody/rhythm
- incremental approach to syntax
- the role of information structure
- what could be tested and how: experimental set-up, questionnaires, potential variables.

1 Syntactic sharing

1.1 Which constructions?

Sharing Construction: coordination of two propositional contents, with a common part that is thus syntactically factorized/shared (in the spirit of Goodall (1985) and Moltmann (1992))

- Factorizing at the right edge (RNR)?

  (1) a. The professor developed a new experimental procedure.
     b. His PhD student used a new experimental procedure.
     ➞ c. [The professor developed] and [his PhD student used] a new experimental procedure.

- Factorizing at the left edge (ATB (2), or conjunction reduction (3))

  (2) a. Which procedure did the professor develop?
     b. Which procedure did his PhD student use?
     ➞ c. Which procedure did [the professor develop] and [his PhD student use]?

  (3) a. The professor prepared a course last week.
     b. The professor prepared a talk this week.
     ➞ c. The professor prepared [a course last week], and [a talk this week].

- Factorizing at the center (gapping)

  (4) a. The professor nicely used questionnaires.
     b. His PhD student nicely used another experimental procedure.
     ➞ c. The professor [nicely used] questionnaires and his PhD student another experimental procedure.

1 According to this definition, even the following coordination could be seen as a sharing construction:

(1) a. The professor developed a new experimental procedure.
     b. His PhD student developed a new experimental procedure.
     ➞ c. The professor and his PhD student developed a new experimental procedure.

We won’t discuss such cases, as they do not raise syntactic concerns (in terms of constituents), nor semantic concerns (in terms of compositionality), whatever the properties of coordination are, i.e. boolean (logical ∧), or non-boolean (cumulative ⊕).

2 All the examples in this section correspond to English translations of French examples.
Other problematic cases of coordination (central coordination, i.e. combination of left and right sharing)

(5) a. The professor has already prepared a new procedure.
    b. The professor will soon use a new procedure.
    \Rightarrow c. The professor [has already prepared] and [will soon use] a new procedure.

Observation #1: these constructions share interesting properties

- linearity principle from Saussure (Saussure (1916)): how to temporally (and linearly) organize in one dimension two parallel contents with a common factor
- crucial role of coordination: how to coordinate what is not shared/factorized
- paradoxes between syntactic structure (subject-object asymmetry) and linear order
- constituency problems with respect to coordination and ellipsis (see awkward bracketing in previous examples, and awkward structure below)
- even punctuation becomes a problem with these constructions!

(6) The professor developed a new procedure.

Observation #2: A potential confusion between syntactic dependencies (including syntactic sharing) and semantic/anaphoric dependencies (including various forms of ellipsis)

(7) The professor developed a new procedure, and his PhD student used it.

Properties of semantic/anaphoric dependencies (including semantic ellipsis): usually reversible (anaphoric/cataphoric), across sentences, triggered by specific lexical items (with potential licensors in boldface)

(8) a. The professor developed a new procedure, but nobody knows why.
    b. The professor developed a new procedure, and his PhD student didn’t.
    c. The professor tried, but he didn’t manage to develop a new procedure.

1.2 Multidominance and/or ‘Parallel’ movement

In the spirit of Nunes (2004); Citiko (2005); Bachrach and Katzir (2009); Barros and Vicente (2011); de Vries (2013)...

(9) Factorizing at the right edge (RNR) with Multidominance

(10) Factorizing at the left edge with Multidominance

Properties of multidominance:

- syntactic structure is preserved (subject-object asymmetry)
- structure and linear order are dissociated (non-linear syntactic graphs)

Advantages/Effects:
- only one formal object for the shared item
- cumulative morphology on the shared item (at the right edge in (12a), at the left edge in (12b))

(12) a. Joan aujourd'hui et Laurence hier ont demandé si Hippolyte allait bien.
   'Joan today and Laurence yesterday asked me if Hippolyte was fine.'

b. C’est alors que surgissent un renard d’un champ et une biche.
   'It is then that arise a fox from a field and a deer from a bush.'
   (Lit.) *'That is when arise a fox from a field and a deer from a bush.'
   (inspired from Bibléi (2017))

- ‘cumulative’ semantics of the shared item (Joan’s version ≠ Laurence’s version)

(13) Je pense que Joan aujourd’hui et que Laurence demain donneront une version différente de ce conflit.
   'I think that Joan today and that Laurence tomorrow will provide a different version of the conflict.'

Main concern: How to linearize the syntactic structure, especially the shared items?

Generalization: linearization (word order) of sharing constructions (multidominated structures) is crucially tied to linearization (word order) of the two distinct propositional contents, and only sharing at the right or left edge can preserve this word order.

- Factorizing at the right edge: relative word order of the two propositional contents is preserved when coordination is added

(14) The professor developed < a new procedure.
   his PhD student used < a new procedure.
   ⇒ The professor developed < and < his PhD student used < a new procedure.

- Factorizing at the left edge: relative word order of the two propositional contents is preserved when coordination is added

(15) Which procedure did < the professor develop?
    Which procedure did < his PhD student use?
    Which procedure did < the professor develop < and < his PhD student use?

- Factorizing at the center: relative word order cannot be preserved with sharing and (wide-scope) coordination

(16) The professor < used < questionnaires
    his PhD student < used < another procedure.
    ⇒ ...questionnaires < and < his PhD student...
    ⇒ used cannot be linearized before questionnaires and after his PhD student at the same time

Solution #1: two low-scope coordinations (the professor and his PhD student used questionnaires and another procedure), but the interpretation is different.
Solution #2: no sharing at all (the professor used questionnaires and his PhD student used another procedure)

Prediction: the effects of multidominance should not occur with sharing at the center.

(17) *Le professeur ont utilisé des questionnaires et son doctorant
   the professor have.3PL used INDEF.PL questionnaires and his PhD-student
   un autre protocole.
   a other protocol
   (Lit.) *'The professor have used questionnaires and his PhD student another procedure.'
Joan gave a different version of this conflict today and Laurence yesterday. ‘Joan provided a different version of the conflict today, and Laurence yesterday.’ (#Joan’s version ≠ Laurence’s version)

### 1.3 Ellipsis

In the spirit of Ha (2007); Barros and Vicente (2011); Salzmann (2012, 2013)...

(19) Factorizing at the right edge with (structural or non-structural) ellipsis (inspired from Ha (2007))

\[ \text{CoordP} \quad \text{S} \quad \text{VP} \quad \text{NP} \quad \text{a new procedure} \quad \text{V} \quad \text{used} \quad \text{his PhD student} \quad \text{Coord} \quad \text{S} \quad \text{VP} \quad \text{NP} \quad \text{did} \quad \text{develop} \quad \text{the professor} \]

(20) Factorizing at the right edge with ellipsis (inspired from Salzmann (2013))

\[ \text{CP} \quad \text{C} \quad \text{CoordP} \quad \text{S} \quad \text{VP} \quad \text{NP} \quad \text{which procedure} \quad \text{ Aux} \quad \text{V} \quad \text{NP} \quad \text{developed} \quad \text{the professor} \quad \text{Coord} \quad \text{S} \quad \text{VP} \quad \text{NP} \quad \text{used} \quad \text{his PhD student} \quad \text{Aux} \quad \text{V} \quad \text{NP} \quad \text{use} \]

### Properties of ellipsis:
- syntactic structure is preserved (subject-object asymmetry)
- syntactic structure is still representative of linear order (linear trees)

### Advantages/Effects:
- the shared item corresponds to two formal objects (one visible on the surface, the other one being reconstructed syntactically/semantically/pragmatically)
- lack of morphosyntactic identity (see Shiraishi (2018))
- strict/sloppy identity (see Fiengo and May (1994))
- reconstruction effects (asymmetric)

### Condition C obliteration:
- Mary likes this picture of John, and he does [\_ \_] too.
- Which picture of John does Mary like _ and but he hate [\_ \_]?
d. Mary gave a picture of John, to her sister and he (did)  to his girlfriend.

(25) Asymmetric effect with Condition A:

a. Which pictures of himself, did John, buy _ and Mary paint _ ?

b. *Which pictures of herself, did John, buy _ and Mary paint _ ?

(26) Asymmetric effect with Variable Binding:

Quelle photo de lui, est-ce qu’aucun homme, n’a apportée _ which picture of him INT.PRT no man NEG.CL-has brought

mais Marie a vue _? La photo de son mariage.

but Mary has seen the picture of his wedding

‘Which picture of himself did no man bring, but Mary see? The picture of his own wedding.’

Main concern: how to predict (im)possible ellipses, and their directional ity?

- At the right edge: catalepsis
- At the left edge: analepsis
- At the center: analepsis

1.4 Adding more puzzling facts...

Even more complex to account for, whatever the analysis:

- correlative coordination (doubling): how to reconcile wide-scope semantic coordination on propositional contents with lower-scope morphological coordination?

(27) Joan en a parlé et à Laurence la semaine passée, et à

Joan CL.IND.OBJ has talked and to Laurence the week past and to

Nicolas hier.

(Lit.) ‘Joan talked about it and to Laurence last week, and to Nicolas yesterday.’

(28) Puis s’avanceront et les professeurs par la droite et les

then step forward.FUT.3PL and the professors from the right and the

étudiants par la gauche.

students from the left

(Lit.) ‘Then will step forward and the professors from the right and the

students from the left.’

(29) Et Joan aujourd’hui et Laurence demain pourront être présents.

and Joan today and Laurence tomorrow can.FUT.3PL be present

(Lit.) ‘And Joan today and Laurence tomorrow will be able to be present.’

How to share with coordination: syntax, prosody – N. Guilliot, U. Konstanz, Jan 17, 2019

- constituency problems for coordination and ellipsis: if the targets are not constitu ents, what are they? Sequences? But which ones?

(30) a. The professor prepared [ ] a course last week, and [ ] a talk this week.

b. The professor prepared a course last week, and [ ] [the professor] prepared

a talk this week.

2 New perspectives (part of a developing project)

General assumptions:

- syntax is hidden, and deduced from (i) morphological cues, (ii) semantic cues, and (iii) prosodic cues
- sharing constructions: when cues do not converge...

2.1 Prosody

Sources of inspiration: few studies to show the role of prosody in sharing

- Factorizing at the right edge (Féry and Hartmann (2005) or Cann et al. (2005b)): prosody as a trigger/marker for ellipsis

(31) Le prof a conçu [ ] et son doctorant a utilisé un

the professor has developed and his PhD-student has used a

nouveau protocole.

new protocol

- Factorizing at the left edge (Bruening (2015)): ellipsis targets syntactic or prosodic groups, and elides everything except the most prominent sub-constituent

(32) *(Le prof) (a préparé (un protoCOLE)) (la semaine passée), et the professor has prepared a protocol the week past and

le professeur (une communication) (cette semaine).

has prepared a talk this week

But we still don’t know when prosody can or cannot trigger ellipsis?

(33) *Le prof a conçu un nouveau protocole et son doctorant a

the professor has developed a new protocol and his PhD-student has

utilisé [ ].

used

My idea of considering prosody as a driving source of syntactic structuring and sharing is part of a developing project and partnership with Elisabeth Delais-Roussarie.
Observation #1: a clear link between elided or coordinated sequences in sharing constructions and the notion of Phonological Phrase (PhP)

Phonological Phrase: linear rhythmic sequence of items (marked by final accentuation on the last syllable in French), defined in various ways in the literature (each version in Verhuyten (1982); Nespor and Vogel (1986); Selkirk (1986); Büring (1995) seems perfectible)

(34) Some constraints on PhP formation according to Verhuyten (1982):
   (i) adjoining N, V, or Adj all the words that precede inside the constituent
   (ii) adjoining any remaining functional word to first N, V, or Adj that follows
   (iii) consider as autonomous PhP any other N, V, or Adj that remains
   (iv) some adjusting rules (a too short PhP can get integrated to the following PhP; 2 PhPs can be merged if some accentuation/schwa is not realized...)

(35) a. (Le prof) (a conçu) (et son doctorant) (a utilisé) (un nouveau
   the professor has developed and his PhD-student has used an other
   protocol).
   b. (Quel protocole) (est-ce que le prof) (a conçu) (et son
   which protocol INT.PRT the professor has developed and his
   doctorant) (a utilisé)?
   PhD-student has used

   c. (Le prof) (a préparé) (un cours) (la semaine passée), (et une
   the professor has prepared a course the week past and a
   communication) (cette semaine).
   talk this week

   d. (Le prof) (a utilisé) (des questionnaires), (et son doctorant) (une
   the professor has used some questionnaires and his PhD-student an
   autre méthode).
   other method

   e. (Le prof) (a déjà préparé) (et utilisera bientôt) (un nouveau
   the professor has already prepared and use.FUT.3SG soon a new
   protocol).
   protocol

⇒ coordinated and shared sequences correspond to one or two phonological phrases. Even if phrasing is not ‘canonical’, prosodic boundaries are respected.

Question: Which role for the prosodic marking in sharing constructions?
   • to trigger ellipsis?
   • to trigger factorization?
   • or just to express continuity and incompleteness (intonation morphemes suggested in Rossi (1985) a.o.) in a more semiotic approach to language (Bouchard (2013))
   (36) a. Le professeur /ct/ de linguistique /CT/ a développé /ct/ un
   the professor of linguistics has developed a
   protocole /ct/ intéressant /CC/.
   protocol interesting
   b. les professeurs /ct/ et les étudiants /ct-CT/ qui le
   the professors and the students who CL.OBJ.3PL
   souhaitent...
   wish

   • or why not to amend syntax, as long as it is compatible with semantics (in the spirit of Steedman (2000) who proposes an isomorphic mapping between syntax and prosody)
   (37) [[les professeurs] et [les étudiants]] qui le [souhaitent...]
   the professors and the students who CL.OBJ.3PL wish

   (38) ceux qui le [souhaitent...]
   those who CL.OBJ.3PL wish

2.2 Incremental/dynamic syntax

Observation #3: a clear link between possible sharing constructions in one language and word/linear order in that language

• SVO (French,...) → SV & SV | O

   (39) Le professeur a conçu et son doctorant a utilisé un nouveau protocole.

• VSO (Welsh,...) → VS & VS | O ; V | SO & SO

   (40) Gwelodd Gwen, a rhuddiod Ifor y dyn.
   saw Gwen and warned Ifor def man
   ‘Gwen saw and Ifor warned the man.’

• SOV (German,...) → SO & SO | V

   (41) Ich glaube daß Peter Kartoffeln und Maria Brod eß.
   I think that Peter potatoes and Maria bread ate
   ‘I think that Peter ate potatoes, and Maria bread.’

\footnote{One potential exception is the case of est-ce que. But this unit doesn’t have to be factorized as it is outside the scope of coordination.}
Observation #4: some constraints in sharing constructions seem to be sensitive to linear locality (rather than structural locality), and thus suggest an incremental approach to syntax, prosody, and semantics.

(42) Which picture of [himself/*herself] did every boy who saw _ say Mary liked _? (Munn (1994))

Incremental/dynamic approaches to grammar: Phillips (1996), Cann et al. (2005b), Beck and Tiemann (to appear)

• grammar-parsing association
• incremental/dynamic building of representations (dynamic constituency)
• lexical units and grammar rules as dynamic procedures (movement → filler-gap dependency; coreference → active resolution of anaphora)
• dynamic integration of context
• grammatical anticipation (requirements, expressed through ?, to formalize local predictions)

Quick illustration of a Dynamic Syntax (largely inspired from Cann et al. (2005a))

• incremental syntax and semantics, with final representations being semantic

(43) Dynamic Syntax of Hippolyte loves Gustave:

\[ ?S, \phi \Rightarrow ?S \Rightarrow ?S \]

\[ ?XP, \phi \Rightarrow ?YP \Rightarrow \text{NP-}(\text{Hippo}) \Rightarrow ?SY, \phi \]

\[ ?S \Rightarrow \text{Hippolyte} \]

\[ \text{NP-}(\text{Hippo}) \Rightarrow \text{VP} \]

\[ \text{Hippolyte} \Rightarrow \text{V-}(\lambda x. \lambda y. y \text{loves } x) \Rightarrow \text{loves} \]

\[ ?S, \phi \Rightarrow \text{love}(\text{Hippo})(\text{Gus}), \phi \]

\[ \text{NP-}(\text{Hippo}) \Rightarrow \text{VP} \]

\[ \text{Hippolyte} \Rightarrow \text{V-}(\lambda x. \lambda y. y \text{loves } x) \Rightarrow \text{loves} \]

\[ \text{Gustave} \]

\[ \text{NP-}(\text{Gus}) \]

• semantic long-distance dependencies (pronoun, ellipsis): anaphoric underspecification (metavariable)

(44) Contribution of a pronoun like he: BP-\(U_{\text{human}}\)

• syntactic long-distance dependencies: structural underspecification of fillers (ex: Who did Nicolas see?)

(45) \[ ?S, \phi \Rightarrow ?S, \phi \Rightarrow \text{NP-}(Hippo) \]

• coordination, relativization, and even adjunction with a similar procedure: LINK structures (that could target what prosody or correlative coordination suggests)

(46) Hippolyte likes Gus and...

\[ \text{S, love}(\text{Hippo})(\text{Gus}), \phi \]

[Diagram 1]

\[ \text{NP-}(\text{Hippo}), \phi \Rightarrow \text{VP} \]

\[ \text{Hippo} \Rightarrow \text{V-}(\lambda x. \lambda y. y \text{loves } x) \Rightarrow \text{loves} \]

\[ \text{SN-}(\text{Gus}) \]

• instead of a metavariable, one could use variable free semantics/conception of pronouns as identity functions (see Jacobson (1999)).
2.3 Information structure

Observation #4: information structure (Background/Focus) is closely related to prosody, and thus to sharing and factorization.

Valmala (2013)’s study on sharing at the right edge: two information structures available

\[
\text{Joan offers (and)... a book to Laurence and a lollipop to Nicolas}
\]

\[
?\text{S.offer(Joan)(y)(x)}
\]

\[
\begin{array}{c}
\text{NP} \\
\text{Joan} \\
\text{?NP} \\
?\text{NP} \\
\text{VP} \\
?\text{VP} \\
?\text{VP} \\
\text{EVAL(\lambda)}/?S
\end{array}
\]

\[
\text{Context: } \lambda x.λ y.λ z. \text{offer y to x}
\]

3 How to test/confirm these correlations?

Overview of possible tests: variables and procedures

3.1 Possible procedures and designs

Experimental methods/designs, depending on the variable to test in sharing constructions:

- audio recordings of subjects to test some effects of prosody, (i) natural, based on contexts, or (ii) artificial, to be used for further judgments by other subjects;
- acceptability judgments on sentences based on previous context (scale from 1 to 7, along the lines of Schütze (1996) a.o.)
  - from written stimuli
  - from audio recordings

(51) Illustration: provide two distinct contents in the context, and ask for acceptability judgments (from 1 to 7) on the possible sharing constructions

⇒ http://spellout.net/ibexexps/nicolas.guilliot/share-fillers/experiment.html

a. Laurence a dit que notre collègue allait bientôt arriver.
   Laurence has said that our colleague was going soon arrive
   a’. Joan a confirmé que notre collègue allait bientôt arriver.
   Joan has confirmed that our colleague was going soon arrive

b. Laurence a dit (que) et Joan a confirmé que notre collègue allait bientôt arriver.
   Laurence has said that and Joan has confirmed that our colleague was going soon arrive

3.2 Potential variables

A non-exhaustive list of potential variables...

3.2.1 Prosodic weight

Prosodic weight of the shared unit

(52) a. Laurence a invité et Nicolas a accueilli le nouveau collègue
   Laurence has invited and Nicolas has welcomed the new colleague du département.
   of-the department

b. Laurence a invité et Nicolas a accueilli Joan.
   Laurence has invited and Nicolas has welcomed Joan
3.2.4 Cumulative agreement or not
Agreement on verbs (person/number), and pronouns (number/gender)

(56) a. La réservation et le règlement des sapins se fera sur les
    the booking and the payment of-the fir trees REFL d.o.FUT.3SG on the
temps de permanence (attesté).
times of display
b. Nicolas sait déjà, mais Joan ignore encore à quelle heure il(s)
    Nicolas knows already but Joan ignores still at what time he/they
rentre/rentrent.
come back FUT.3SG/PL
d. Nicolas récrit tandis que Joan a terminé son/leur nouvel ouvrage.
    Nicolas rewrites whereas Joan has finished his/her new book

3.2.3 Sharing with(out) licensing
Lexical/semantic ellipsis (lexical licensing) vs 'prosodic ellipsis'

(55) a. Les musiciens se sont déclarés et les acteurs ont voté contre.
    the musicians REFL are declared for and the actors have voted against
    the new project of show
b. Les musiciens se sont déclarés et les acteurs ont voté pour le
    the musicians REFL are declared and the actors have voted for the
    new project of show
c. Les musiciens se sont installés sous et les acteurs se sont assis
    the musicians REFL are settled under and the actors REFL are seated
    on the new stage of show
d. Les musiciens se sont installés et les acteurs se sont assis sur
    the musicians REFL are settled and the actors REFL are seated on
    the new stage of show

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