

Head-final languages gapping forward: right-branching coordination across modalities.

Abstract

This paper focuses on the phenomenon of forward gapping in head-final languages (SOV) mainly looking at Catalan Sign Language (LSC). Ross (1970) claims that there is no language that can only gap forward having SOV as underlying order (*SOV-SO), but LSC does. A left-branching coordination structure, which should arguably be the one used to represent SOV-SO order in head-final languages, is not appropriate, though. In order to satisfy the *identity condition*, the gapped verb must be c-commanded by the overt verb. In this paper, I argue that SOV languages such as LSC, presenting forward gapping and prepositive coordination, need a right-branching coordination structure.

1 Introduction.

Gapping is defined as being such only if the gap appears in the second conjunct of a coordination (Johnson, 2014). This definition of gapping contradicts, in part, Ross' (1970) analysis of directionality of gapping. Looking at head-final languages, Ross (1970) claims that there is no language that can only gap forward having SOV as underlying order (*SOV-SO). Languages like Farsi, though, seem to respect this pattern (Carrera-Hernández, 2007) and Catalan Sign Language (LSC), used by the deaf community in the region of Catalonia (Spain), does too. This data has consequences for the directionality of the coordination structure that needs to be adopted to represent gapping. Assuming that conjunction functions as a head, having the second conjunct as its complement (Munn, 1993, and Kayne, 1994), and assuming also a deletion approach to account for gapping (Merchant, 2001, and Coppock, 2001), a left branching coordination structure (Figure 1) is

not able to satisfy *identity condition*. The gapped verb in the second conjunct must be c-commanded by the overt verb in the first one. In Fig.1, though, the verb in the first conjunct can't c-command the element in the second one. In the right-branching coordination structure in Fig. 2, instead, this requirement is met.

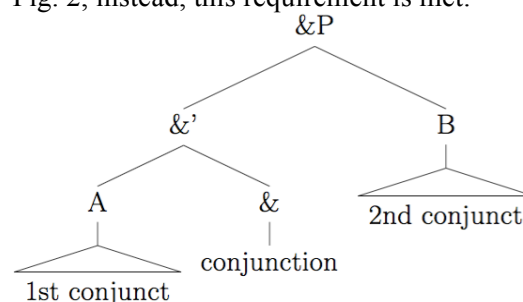


Figure 1. Left-branching coordination structure.

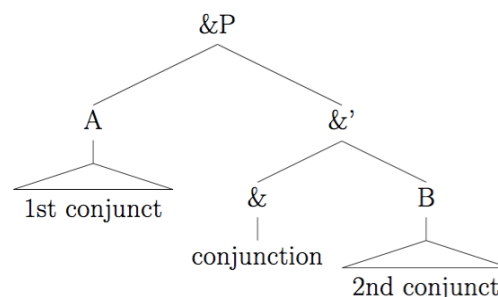


Figure 2. Right-branching coordination structure.

I will argue that the type of coordination structure relates to the directionality of gapping and that SOV languages gapping forward need a right-branching coordination structure (Fig. 2). This choice will be justified by the position of the coordinator with respect to the conjuncts from an intonational point of view, as already proposed by Zhang (2010).

In the sections that follow I will present, in 2, the data related to the intonational grouping of the coordinator with one of the two conjuncts and the consequences on the type of structure to choose to account for it. In 3, I will explain how

conjunction is expressed in LSC, in order to make the gapping data, presented in 4, clearer. Before concluding, in 5 I will disentangle the problems that might arise between gapping and RNR in head-final languages that have both structures, such as Farsi and Turkish.

2 Position of the coordinator

The nature of a coordination structure, assuming that it is headed by the conjunction that takes the second conjunct as its complement (Munn, 1993, and Kayne, 1994), raises the possibility of classifying the presence of initial ($\alpha[\&\beta]$) and final coordination ($\alpha[\beta\&]$). As attested by Zwart (2005), final coordination is considered to be very rare, even in head-final languages which actually show a clear preference for the initial one. For initial coordination, Haspelmath (2004) reports two more types of coordination, depending on the position of the coordinator in relation to each conjunct:

- a) prepositive, where the coordinator belongs to the second conjunct ($\alpha[\&\beta]$);
- b) postpositive, where the coordinator belongs to the first conjunct ($[\alpha\&][\beta]$).

One way to establish the position of the coordinator in relation to the conjuncts consists in looking at the intonational grouping formed by the coordinator with respect to the conjuncts, among other tests (Haspelmath, 2004). When appearing only once, a coordinator can be to the left of the second conjunct (1, 2) or to the right of the first one (3). In (1) and (2) there is an example from English and Farsi, head-initial and head-final languages respectively. In Farsi, even if the coordinator is enclitic, when extraposing a conjunct, it moves along and it encliticizes onto the element that precedes it (Stilo, 2004). This test can be applied to further confirm the position of the coordinator as being on the left of the second conjunct. In (2) there is an example of postpositive coordination identified by Ross (1967) in Japanese, a head-final language. In the examples, “//” marks the intonational break.

- (1) $[\alpha[\&\beta]]$ in a head-initial language.
The son graduated // **and** the daughter got married. (English)

- (2) $[\alpha[\&\beta]]$ in a head-final language.
Xoda ye (dune) bæradær dad
God one CLF brother gave
beh=és=o ye xahær.
to=3S.OBL=and one sister
“God gave him a brother and a sister.” (Farsi)

- (3) $[\alpha\&][\beta]$ in a head-final language.
musuku-ga sotugyoo sita-si // musume-
son-NOM graduation did-and daughter-
ga yome-ni itta.
NOM bride-DAT went
“The son graduated and the daughter got married.” (Japanese)

Relying on the intonational grouping, Zhang (2010) argues that the two orders need two different kinds of coordination structure: **right-branching**, like for English (Figure 3), when the coordinator appears on the left of the second conjunct, and **left-branching**, like for Japanese (Figure 4), where the coordinator appears on the right of the first conjunct.

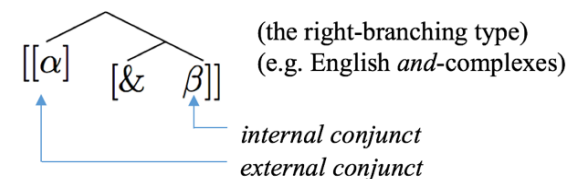


Figure 3. Right-branching structure.

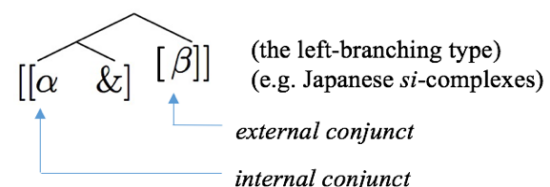


Figure 4. Left-branching structure.

Being independent of SOV or SVO order, right-branching coordination would then account also for a head-final language like Farsi (2).

In the next section, we will see the distribution of the coordinator in respect to the conjuncts in LSC.

3 Conjunction in LSC

LSC is a head-final language that mainly expresses coordination asyndetically, i.e. without an overt coordinator, using non-manual markings (NMM): body and head movement together with the use of space (Figure 5).



Figure 5. Use of the right portion of the space in combination with head movement signing CROISSANT in LSC.

To express the first conjunct, the signer uses either the left or the right portion of the signing space in front of her by leaning or shifting the body or the head towards the direction of the part of the space used. The second conjunct is then signed using the opposite portion of the frontal signing space with the body/head leaning towards that direction, like in (4), where “bs” refers to body shift.

- (4) $\frac{\text{MARINA PIZZA EAT}}{\text{BUY}} \text{bs:right} \quad \text{bs:left} \frac{\text{ICE-CREAM}}{\text{BUY}}$
 “Marina ate a pizza and bought an ice-cream.”

When there is an overt coordinator between the two conjuncts, it is the sign glossed as ALSO. In contexts other than coordination, it is used as an additive focus marker meaning “also/too”. In coordination, though, LSC seems to present the same characteristics of languages in which this type of adverbial connectors develop into conjunctive markers (Mithun, 1988), assuming, then, different functions depending on the type of sentence. ALSO, in fact, can appear both in nominal and verbal conjunction, (5 and 6), other than in cases of ellipsis, for example (7), where it appears as an additive focus particle.

- (5) BROTHER : ALSO SISTER
 GRADUATE
 “The brother and the sister graduated.”
- (6) MARC CAKE BAKE : ALSO
 MARINA PIZZA EAT : ALSO IX-2
 SANWICH PREPARE
 “Marc baked a cake and Marina ate a pizza and you prepared a sandwich.”
- (7) MARINA FRUIT EAT CAN JORDI

CAN ALSO

“Marina can eat fruit and Jordi can, too.”

Looking now at the intonational grouping of ALSO in respect to the conjuncts, as in English, the coordinator belongs in the second conjunct: ALSO can be signed in a continuum with the second conjunct following a short prosodic break after the previous conjunct, marked in (5) and (6) using “:”. The coordinator does not need to be signed in the portion of the space designated for each conjunct, as in (5, 6), and can be signed in neutral space. Moreover, if the second conjunct is extraposed, the coordinator moves along (8).

- (8) BROTHER GRADUATE : ALSO
 SISTER
 “The brother and the sister graduated.”

Therefore, as I claimed for Farsi, LSC requires a right-branching coordination structure like English (Fig. 3). The rest of the LSC clause structure, though, is kept left-branching since functional heads tend to be final while the specifier of IP has already been shown to be on the left (Benedicto et al., 2008).

4 Gapping in LSC

LSC, despite being an SOV language, shows only forward gapping (9), while other SOV languages such as Japanese only have SO-SOV order (10).

- (9) a. SOV-SO (LSC)
 MARINA COFFEE PAY JORDI
 CHOCOLATE
 b. *SO-SOV (LSC)
 *MARINA COFFEE JORDI
 CHOCOLATE PAY
 “Marina payed for a coffee and Jordi for a chocolate.”
- (10) SO-SOV (Japanese)
Watakusi wa sakana o, Biru wa
 I (prt) fish (prt), Bill (prt)
gohan o tabeta.
 rice (prt) ate
 “I ate fish and Bill rice.” (Ross, 1970)

Based on the data in (9), Ross’ (1970) generalization, which states that “if the identical elements are on left branches, GAPPING operates forward; if they are on right branches, it

operates backward”, is not satisfied. Johnson (2014), in fact, defines gapping as being such only if the gap appears in the second of the two conjuncts. Japanese, then, doesn’t show gapping but Right Node Raising (RNR), according to him. Therefore, LSC shows only gapping.

An important question to raise at this point is if the right-branching coordination structure proposed in section 3 above could account for gapping in LSC.

As anticipated in the introduction, the *identity condition* requires the gapped verb to be c-commanded by the overt one. Moreover, it is necessary to have a structure that licenses binding between the conjuncts, in a sentence like the one in (11).

- (11) No woman can join the army and her girlfriend the navy.
(Johnson 2006/9)

In order to do so, a left-branching structure (Fig. 1) can’t satisfy these requirements since it is impossible for the first conjunct to c-command the elements in the second one. A right-branching one, instead, can (Fig. 2). When having RNR, this is not a concern.

5 (Forward) gapping and RNR

Languages gapping forward, independently of their being head-initial or final, happen to show prepositional coordination ($\alpha[\&\beta]$) and therefore the need of having a right-branching coordination structure, like English and LSC. To analyze gapping, I assume large coordination (Gengel, 2006) and PF deletion (Merchant, 2001; Coppock, 2001) and for RNR, I adopt covert ATB movement / multidominance theory (Wilder, 2001; Abels, 2004).

I argue that the difference in the directionality of the omission of the verb in coordination is also linked to the position of the coordinator itself. Therefore, I claim that in languages showing prepositional coordination, to account for gapping, right-branching coordination is necessary, also in head-final languages.

Head-final languages like Japanese, instead, that have postpositive coordination ($[\alpha\&][\beta]$)

and show only RNR, don’t have special needs to accommodate in the structure to account for the verb missing in the first conjunct. Therefore, on the basis of the position of the coordinator and the analysis by Zhang (2010), a left-branching structure can be the proper representation for coordination and also RNR in head-final languages with postpositive coordination.

Other SOV languages, such as Farsi (12) and Turkish (13), show both gapping and RNR, though, which, following what has been claimed till now, would need both right and left-branching coordination.

- (12) Farsi (Farudi, 2013)
a. Gapping: SOV-SO
Rodmehr gusht xord va Anahita
Rodmehr meat ate.3sg and Anahita
Māhi.
fish
b. RNR: SO-SOV
Rodmehr gusht va Anahita māhi
Rodmehr meat and Anahita fish
Xord.
ate.3sg
“Rodmehr ate meat and Anahita fish.”
- (13) Turkish (Bozsahin, 2000)
a. Gapping: SOV-SO
Adam kitabı okudu, çocuk
man book-ACC read-PAST child
da dergiyu.
CONJ mag-ACC
b. RNR: SO-SOV¹
Adam kitabı, çocuk da
man book-ACC child CONJ
dergiyi okudu.
mag-ACC read-PAST
“The man read the book, and the child,
the magazine.”

Looking first at the intonational grouping of the coordinator with each conjunct, both Farsi and Turkish show to have prepositional coordination. For Farsi we saw, in (2), that when extraposing the second conjunct, the coordinator moves along. The same holds also for Turkish, in (14b), where the coordinator forms also an intonational group with the second conjunct (14a).

¹ In Turkish, RNR also appear with the OS-OSV order. It might depend on the fact that Turkish is considered to

have another underlying word order, OSV, as claimed by Bozsahin (2000).

- (14) Turkish
- a. *Bana elma //ve armut verdiler.*
to.me apple and pear they.gave
“They gave me apples and pears.”
 - b. *Bana elma verdiler ve de armu*
to.me apple they.gave and also apple
“They gave me apples and pears.”

Right-branching coordination, therefore, as in English and LSC, licenses gapping in Farsi and Turkish. The same structure can also be used for RNR (SO-SOV). It’s possible to draw a parallel between the distribution of a right-node-raised verb and a right-node-raised object in head-initial languages. Both the verb and the object are found on the extreme right of the second conjunct and they are missing in the first one, like in (15) for RNR of the object in English.

- (15) SO-SVO
John bought and Mary read, a book.

This parallelism underlines, again, the importance of the position of the coordinator with respect to the conjuncts. It’s not the type of ellipsis used, gapping or RNR, to determine the type of structure to pick for coordination, but instead it depends on whether the language has prepositive or postpositive coordination.

6 Conclusions

Head-final languages such as LSC, having prepositive coordination ($\alpha[\&\beta]$) and presenting forward gapping, need a right-branching coordination structure. Such structure licenses the gap in the second conjunct and binding between the conjuncts. In SOV languages such as Japanese, there is no such need since it has postpositive coordination ($[\alpha\&][\beta]$) and only RNR is used. Following Zhang (2010) these languages represent coordination with a left-branching structure. If both gapping and RNR are present in a SVO language, as in Farsi and Turkish, right-branching coordination can be used as well. They both show grouping of the coordinator with the second conjunct allowing to license gapping in a right-branching coordination structure. As for RNR, there is no specific word order difference from SVO languages when RNRaising an object in comparison to RNRaise a verb in a head-final one. This paper contributes to the analysis of directionality of coordination in SOV languages

underlining the importance of the position of the coordinator with respect to the conjuncts in order to decide whether a language has a right or left branching coordination structure. This aspect, as far as I know, has never been considered in detail in relation to elliptical structures like gapping and RNR.

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