

SUCCESSIVE CYCLICITY

- (1) a. *He has been arrested.*
b. *He was suspected to have been arrested.*
c. *He was believed to have been suspected to have been arrested.*
- (2) a. *Who have they arrested?*
b. *Who do you suspect they have arrested?*
c. *Who do you believe they suspect they have arrested?*

The idea is that a long movement as in (1d) is **broken down into smaller steps**:

- (3) ... *he_i* ... [_{IP} *t_i* to have been suspected [_{IP} *t_i* to have been arrested *t_i*]]

And arguably similarly for (2d), with the “intermediate traces” of the movement involving not A-movement as in (12) (into “intermediate subject” positions) but, rather, A'-movements (in CP and possibly vP domains).

A related matter is whether in a situation of “successive cyclicity” **the representation “reconstructs”**, and if so whether the relevant chain collapses into a **single configuration or, instead, multiple collapses** are factually possible.

A traditional observational correlate for “successive-cyclicity” has been the **overt presence of agreement**. Example (4) illustrates for Spanish (agreement boldfaced):

- (4) *Juan parece haber sido visto borracho*
Juan seems.AGR[pers.num] to.have been seen.AGR[gen.num.] drunk.AGR[gen.num.]
“Juan seems to have been seen drunk.”

A morphological reflex like this is clear in many languages, which is seen as corresponding to a displacing element like the 3rd person masculine singular *Juan* in (4), triggering overt morphological agreement (in gender and number) as specifier of the lowest predicate *borracho* first, next as specifier of the intermediate predicate *haber sido visto* (still overtly and in gender and number), and finally as specifier of the matrix predicate *parece* (again overtly, in person and number). Of course, it is an interesting issue how each agreement process features in what: **movement? Chain formation? Neither?**

Note in that regard:

- (5) a. [(*Juan*) *parece* [(*Juan*) *haber* (**Juan*) *sido* (**Juan*) *visto* [(*?*Juan*) *borracho*]]] (*Juan*)
b. [(*Todos*) *parecen* [(*todos*) *haber* (**todos*) *sido* (**todos*) *vistos* [(*??todos*) *borrachos*]]] (*todos*)

Bear in mind that agreement at the very top (associated to the T-marked verb) is in person and number, whereas the multiple agreements thereafter are only in number and gender.

Do we get similar facts for A'-movement? This is one of the central topics that Den Dikken 2018 seeks to elucidate. McCloskey 1978 argued that **complementizers in Irish exhibit agreement with a displaced Wh-phrase**, as in the following example (from McCloskey 1990), where the formative *a* triggers lenition in the ensuing consonant:¹

- (6) *an rud [a shíl mé [a dúirt tú [a dhéanfá]]]*
 the thing^{A'} thought I A'^L said you A'^L do-COND-2SG
 "the thing that I thought you said you would do"

Now, under current assumptions, it would be equally necessary for such a long Wh-movement chain to involve not just all the complementizer projection domains it crosses, but **also intermediate verbal projections**. It is harder to find actual agreement of that verbal sort associated to Wh-movement (though see below).

Another case that has received much attention is Chamorro, from Chung 1998:

- (7) *hayisi Manuel hinassóso-nña chumuli' i salappi'?*
 Who UNM Manuel WH-OBJ.think.PROG-AGR WH.NOM.take the money
 'Who does Manuel think has taken the money?'

Chung originally noted (1998: 229) that it is only the ultimate (semantically significant) **landing site of Wh-movement that registers Wh-agreement proper**. In this language, however, there is also some **morphological reflex on the verbs**, starting with the one in which the Wh-phrase originates (here *chumuli* 'take'), which extends to verbs in higher clauses too (e.g. *hinassóso-nña*, 'think'). However, whether that is *bona-fide* Wh-agreement (basically, with the Wh-movement traces) or, instead, a structural prerequisite for the Wh-movement to be licensed across the relevant domain, is less obvious.

As Uriagereka 1996: 434 emphasized (citing Chung 1994: 14), **the alleged Wh-agreement does not exhibit the Case of the Wh-phrase**; it does, instead, **the Case of the complement from where the extraction proceeds**:

- (8) *hafa ma'añao-ña i palao'an [pära u-fa'nu'i si nana-ña?*
 what WH-OBL.afraid-AGR the girl fut WH-OBJ. AGR.show UNM mother-AGR
 'What is the girl afraid to show her mother?'

The key here is the OBL morphology of the matrix verb, which is crucially not the objective (OBJ) morphology that should correspond to the moved Wh-phase (as marked in the embedded verb *u-fa'nu'i* 'show'). Uriagereka 1996 argued that this is a **reflex of the embedded complementizer incorporating into the matrix verb, basically so as to make the complement clause transparent**. The idea is much in the spirit of subsequent analyses by Rackowski and Richards (2005) for related facts in Tagalog or Urk and Richards (2013) for Dinka. These authors argue that, while a relationship exists between

¹ This is what the L superscript in the gloss indicates. The lenition that does not occur if the element in point has not been associated with a moving Wh-phrase.

an intermediate *v* and the CP complement it associated with (via *V*), this is less a reflex of the Wh-movement itself as it is, instead, a way to create a “transparent path” (possibly in the general sense of Lasnik and Grano 2018) for the Wh-movement not to be trapped within an opaque domain.

Den Dikken 2018 reviews other well-known types of evidence pre-theoretically arguing for the “successive cyclicity” of, in particular, Wh-movement. These range from **Wh-copies** (starting with Du Plessis 1977) to **inversion effects** (as in Torrego 1984 for Spanish or Henry 1995 for Belfast English). It is worth pausing on each of these separately.

Den Dikken correctly points out that **the alleged “copies” are anything but**, as was already clear in the original Du Plessis paper.² The literature since then has shown the richness of the phenomenon, including the possibilities exhibited in (9), across languages:

- (9) a. *Wer glaubst du wer kommen wird?*
 Who think you who come.will
 ‘Who do you think will come?’
- b. *Wen denkst du [wen von den Studenten] man einladen sollte?*
 who think you who of the students one invite should
 ‘Which of the students do you think one should invite?’
- c. * *[Wen vonden Studenten] denkst du [wen von den Studenten]*
 who of the students think you who of the students
man einladen sollte?
 one invite should
- d. *Was glaubt Hans [mit wem] [Jakob jetzt spricht]?*
 What believed Hans with whom Jakob now talks?
 ‘With whom does Hans believe Jakob is now talking?’

The first examples in (9) are taken from Den Dikken’s (2018) review, and they make a simple point: while it is plausible to speak in terms of either copying or some form of agreement for (9a), this is not reasonable for (9b). **Obviously, *wen von den Studenten* ‘who of the students’, is not a copy of *wen* ‘who’**; moreover, if the phrase were in the left periphery and the single word *wen* were “left behind”, one could argue for this being a morphological reflex of agreement—the opposite makes no sense, as entire phrases are never agreement markers. Indeed, as Nunes 1995, 2004 emphasized, **situations of the sort in (9c), where the entire complex Wh-phrase is repeated, do not arise**, suggesting that whatever is going on in (9a) or (9b) is subtler than a mere copying process. The prospect is confirmed in terms of the phenomenon of “partial Wh-movement”, as discussed

² The paper was actually an attempt to present, instead, instances of preposition stranding in intermediate complementizers. This was meant a response to Postal 1973, who denied their existence as an argument (already offered in Postal 1968) against the “successive cyclic” treatment of Wh-movement in Chomsky 1973.

by McDaniel 1989 (from which (21d) is taken). We need not emphasize that **the scope-marker was is in no way identical to the question word *mit wem* ‘with whom’**.

Den Dikken 2018 seems more moved by **verbal inversion facts associated to Wh-movement**, as in the Belfast English example in (10) (from Henry 1995):

(10) *Who **did** Mary claim [**did** John kiss]?*

While the correlation as such is straightforward, as first systematically emphasized by Torrego 1984 for Spanish, it is **far less clear how it relates to whatever principle of grammar is supposed to ensure successive-cyclicity**. To put it in contemporary terms, it may be that the issue has to do with **making phase domains transparent** for movement across—but exactly **why verb movement to C should have that effect** is far from obvious. This is particularly so because the phases in current minimalism are taken to be vP and CP, so it is not really clear what the head of TP (the element carrying the sentential Tense marker) has to do with this (though see Pesetsky and Torrego 2004 for much relevant discussion that we cannot afford to go into here).

All of the evidence indicates that there is something very interesting going on in successive CP domains (and possibly also vP domains) when involving Wh-processes. Possibly the strongest sort of verification that something deep is indeed going on stems from situations of **language learning** as in (11):

- (11) a. ***Which mouse** do you think **who** the cat chased?*
b. ***Who** do you think **which baby** eats the ice cream?*

(11a) belongs to a class of examples unearthed in Thornton 1989, produced by some 20% of English toddlers acquiring standard English. In turn, (11b) was unearthed by Gutiérrez 2005 in a situation of bilingual Spanish/Basque adolescents acquiring English as a second language, some of whom produced examples like (11b). Two things are noteworthy here. First, Thornton managed to elicit long-distance questions from very small children, which is remarkable in itself, particularly when at the time **it was not clear whether children could process (let alone produce) such complex sentences**. Now, when they did produce such examples, mysteriously **an “extra” Wh-element** (like the *who* in (11a)) started popping in between the embedding verb and the embedded clause. Very importantly, there is absolutely **nothing like (11a) in the primary linguistic data** of these English-learning children (unlike what happens in the context of, say, German speaking children: examples like (9)). In other words, children were somehow converging into a linguistic option that—although Universal Grammar clearly allows—is not within their realm of experience. Almost as remarkable are Gutiérrez’s findings. First because, just as in the first-language acquisition instance, neither Spanish nor Basque (the languages her subjects already spoke as adolescents) allows for examples like (11b). Second, because if anyone is thinking that the toddler’s **“mistake” is a reflex of their limited abilities** in the pre-kindergarten years, in this instance we are talking about **young adults in the prime of their mental development**. So something is certainly going on...

The only issue is whether this pre-theoretical “successive cyclicity” has to do with **movement proper, chain formation, agreement processes per se, or some other condition** (e.g. related to complex super-chain formation). To address that, one ought to consider matters of “**connectivity**” and “**reconstruction**”. But before going there, note that, in principle, another way to deal with cyclicity problems, in principle, is “pied-piping”. **If you cannot go out of the mountain to meet Mohammed, bring the mountain along!**

Possibly two types of pied piping may be relevant. First note classical instances:

- (12) a. *Who have [pictures of t] impressed you?*
 b. *[Pictures of whom] have impressed you?*

Next compare the Basque (14) vis-à-vis the Russian (13) [*sorry for the data!*]:

- (13) a. **Kogo ty думаеш, что я видел?*
 who you think that I see.past
 b. *Kak ty думаеш кого я видел?*
 how you think who I see-past
 ‘Who do you think I saw?’
 a. **Kogo ja videla ty думаеш?*
 who I see.past you think
 (‘Who did I see do you think?’)

- (14) a. *Nor ez duzu sinesten etorri dela?*
 who not aux believe come aux-comp
 “Who do you not believe has come?”
 b. *Nor etorri dela ez duzu sinesten?*
 Who come aux-comp not AUX believe
 “Who has come do you not believe?”

In these instances there is no island to go across—because you are bringing the entire would-be island with you! That said, it is curious that **not all domains can pied-pipe**:

- (15) a. *Nor ez duzu sinesten etorri denik?*
 who not aux believe come aux-PART
 “Who do you not believe has come?”
 (16) a. **Nor etorri denik ez duzu sinesten?*
 Who come aux-PART not AUX believe

While regular clauses may pied-pipe, **partitively marked ones cannot**. The fact that different modes of complementation exist may also relate to the Russian facts in (13).

Den Dikken also evaluates Barss's standard reconstruction effects, exhibiting skepticism on the basis of the **logophoricity of anaphors within picture-NPs**. Witness (17) from Safir (1999):

- (17) *The rock star said that his wife would not identify which pictures of himself she had defiantly sent to the tabloids.*

But there are simple **ways around** that. Among them (from Lasnik & Saito 1992:110)

- (18) a. **John thinks Mary likes himself.*
 b. ?*John thinks himself, Mary likes.*
 c. **(speaking about Bill,) I think (that) himself, Mary likes.*
 d. *Himself, John thinks (that) Mary likes.*

- (19) a. **John wonders if Mary likes himself.*
 b. ??*John wonders if himself, Mary likes.*
 c. **(speaking about Bill,) I wonder if himself, Mary likes.*
 d. ? *Himself, John wonders if Mary likes.*

- (20) a. **They said I should paint each other's portraits.*
 b. ?*They said each other's portraits, I should paint!*
 c. *Each other's portraits, they said I should paint!*
 d. ?? *Each other's portraits, they wondered if I should paint!*

It is interesting to consider other possible reconstruction instances involving “**pinning down**” items, such as Lasnik and Funakoshi's (21) in 2012:

- (21) a. *No criticisms of each other's theory seem to any two linguists to be without merit.*
 b. ...[[to any two linguists]₁ [[no criticisms of each other₁'s theory] to be without merit]]
 c. [[No criticisms of each other's theory]₂ seem [[to any₂ two linguists] [no criticisms of each other's theory to be without merit]]]

Although, strictly, it is possible that *each other* in (21b) is licensed even before the A-chain is formed. That can be addressed as in (22):

- (22) a. *No criticisms of each other's theory seem to any two linguists₁ to appear to their advisors₂ to be without merit.*
 b. **No criticisms** of each other's theory seem to any two linguists₁ no criticisms **of each other₁'s** theory to appear to their advisors₂ no criticisms of each other's theory to be without merit.

Here the A-chain has clearly started, and **in its way up it requires that each other be successive-cyclically licensed**; note in particular that licensing from the “base position” would have *their advisors* as antecedent. While that is surely a possible reading, it is equally

possible to have *any two linguists* as the antecedent. This is a **very powerful argument for successive cyclicity** (either on-line or through copies at LF).

(21) and especially (22) are **counterexamples** to a condition proposed in Lebeaux 1999 (which he called the “Single Tree” condition and can be seen as a “chain uniqueness” requirement): basically, that **the chain “collapses” at a given site**. This is an interesting matter because, if it is true that a chain can only collapse in a single configuration, there is **not even a temptation to treat whatever we are calling “successive cyclicity” as anything possibly related to chain fusions**, needed independently:

(23) *John is easy (for anyone) [to impress t^{John}] after meeting t^{John} even briefly.*

Once things of this sort exist (multiple chains that become a single “super-chain”), it is possible to **imagine them playing a role in situations like (9) or (11)**. This is what Den Dikken suggests for Kinande, following Schneider-Zioga (2009), despite “successive cyclic” marks as seen above. They base the conclusion on the fact that in relevant domains there are **absence of superiority effects** (indicating there may not be long-distance movement at all) and **connectivity effects** (indicating there whatever is happening does not “reconstruct”), together with **“the fact that successive-cyclic A-movement appears to be impossible in Kinande as well, so the language apparently shows no evidence of having successive-cyclic movement anywhere in its grammar”**. If that puzzles you, welcome to the club. At any rate, one way to avoid these matters entirely is by arguing that in some relevant long-range correlation there is **a single dependency that uniquely collapses**, which **makes it difficult to go into further gambits**.

Strictly, because an expression like *no criticisms of each other theory* has **so much internal structure**, it is possible that the portion *each other* involves its own (separate) **chain with respect to the relevant antecedent**—e.g. by the antecedent *Probing into the anaphor*, at the point in which it is local to this antecedent, but without the entire A-chain collapsing. To test that, we need to see **if we can create relevant situations for A-chains without (significant) internal structure**. We could work with negative quantifiers:

- (24) a. *No one seems to be singing the Anthem.*
b. CAN MEAN: No one seems as if they are singing the Anthem.
c. CAN MEAN: There seems to be no one singing the Anthem.
d. CAN NOT MEAN: No one seems as if no one is singing the Anthem.

One way to interpret the impossible reading in (24d) is by **preventing a “double collapse” for the chain**. Unfortunately, there is a complicated history involving these so-called Q-lowering contexts, which we cannot fully go into now (see e.g. Lasnik 2012 for a review). The saga includes an argument by Partee 1971 showing how **some raising instances prevent lower scope for the negative quantifier**. Observe:

- (25) a. *No doctor is certain to be at the scene.*
b. CAN NOT MEAN: There is certain to be no doctor at the scene.

Iatridou and Sichel 2011: 600 show how whatever underlays Partee’s restriction does not affect predicates like *seem*, *appear*, or passive forms, as shown in (26) as compared to (25) (the reason we should use such predicates only in potentially relevant tests):

- (26) a. *No doctor seems/appears/is believed to be at the scene.*
 b. CAN MEAN: There seems/appears/is believed to be no doctor at the scene.

To avoid potential extra complications with quantifiers related to their scopal characteristics, we may want to **stick to scope-rigid names in our examples**:

- (27) a. *Kaepernick seems to be singing the National Anthem.*
 b. CAN MEAN: Kaepernick seems as if he is singing the Anthem.
 c. CAN MEAN: there seems to be someone, Kaepernick, singing the Anthem.
 d. CAN NOT MEAN: Kaepernick seems as if Kaepernick is singing the Anthem.

Let’s start with (27a), an ambiguous sentence, each of whose meanings can be paraphrased as in (27b) and (27c). The structural issue here boils down to **whether the name *Kaepernick* is interpreted inside or outside the semantic scope of *seem* (*appear*, *was believed*...)**. The punch-line: (27a) can *not* be interpreted to mean something paraphrased as in (27d), which should be possible if the two occurrences of *Kaepernick* (one outside and one inside the scope that *seems* establishes) remain live at LF and are thus interpreted.

How about for A’-movement?, as compared to those A-movement examples, as seen when considering the cases in (28), involving **Negative Inversion** in English—which is often associated to an exclamative interpretation.

- (28) a. *No one, does anyone believe anyone can arrest!*
 b. CAN MEAN: No one is such that anyone believes anyone can arrest them!
 c. CAN MEAN: For no one does anyone believe that just anyone can arrest them!
 d. CAN MEAN: For no one does just anyone believe anyone can arrest them!
 e. CAN MEAN: For no one does just anyone believe just anyone can arrest them!

The expression *anyone* can mean different things depending on whether it is in the local scope of a negative. “Free choice” *anyone* basically means “just anyone”, but of course there is the “(negative) polarity” reading too. **All logically possible combinations of readings** (depending on combinations of the “free choice” and “polarity” readings for *anyone*) seem possible for (28a). This is remarkable for the most salient reading: (28b). For that to arise in the derivation of (28a), the **displaced *no one* has to sanction both “polarity” *anyones* in the two subject sites the sentence involves**. This seems to require (29) (where syntactic traces are represented as superscripted copies of the displaced material):

- (29) [**No one** does [*anyone* believe [**t^{no one}** [*anyone* can arrest **t^{no one}**]]]]

In (29) all *anyone* tokens are in the local scope of some *no one* copy (the pronounced item for matrix *anyone*, the intermediate trace for the embedded subject).