

Ordering operations on an all-powerful C

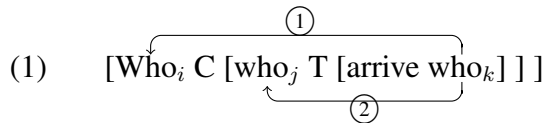
1. Introduction An important axiom in the version of phase theory delineated in Chomsky 2007, 2008; Richards 2007 is “All-powerful Phase Heads (APH)” (Richards 2011:p.88), which stipulates that only phase heads can introduce uninterpretable features (**uFs**) & Edge Features (**EF**) associated with various A'-movements, and initiate all operations such as Agree, Transfer and Movement (Copy & Internal-Merge). I argue that in this particular framework, Chomsky (2008)'s “parallel” treatment of phase-complement Transfers and edge feature (EF) probing on C is conceptually problematic, and these operations must be ordered on a language-specific basis. The resolution of this problem reveals more empirically observable consequences following the same set of premises.

2. Summary of axioms and consequences Besides APH, other axioms in this theory are the following: **First** (p_1), uFs enter the derivation *unvalued*, and are distinguished from interpretable features by virtue of *only* this property. **Second (Full Interpretation, Full-I)**, all elements must be interpreted in LF (Chomsky, 2001). **Third (Phase Impenetrability Condition, PIC)**, transferred materials are not accessible to further syntactic computations in the next phase, while the edge (head & specifiers) and the complement of a phase undergo Transfer separately, such that the phase edge is transferred by the next phase head (Chomsky, 2004). Richards (2007) shows that these premises necessitate **uF-inheritance**: First, due to (p_1) and (Full-I), uFs must stay unvalued during LF-Transfer for them to be identified and deleted for LF, but they are retained and valued at PF, so uFs can neither be deleted nor valued **before both Transfers** (Epstein & Seely, 2002). **Instead** (c_1), uFs must stay unvalued while entering both Transfers (initiated simultaneously by phase heads), and receive the appropriate treatment during each. Then, (APH), (PIC) and (c_1) together necessitate that uFs introduced on phase heads (e.g. C) must be passed onto the phasal complement (TP) during its Transfers, and all operations allegedly associated with uF-valuation (e.g. raising to subject) should proceed during PF-Transfer. uF-inheritance is observed in English as the dependency of ϕ -agreement of T on a finite C, such that an infinitival TP lacks ϕ -agreement (Chomsky, 2008).

3. The problem In this theory, when C possesses an edge feature (EF) probing for A'-movement, Chomsky (2008) treats EF-probing and TP-Transfers as proceeding in parallel, but such “parallel” treatment here is conceptually problematic. Two operations can only be stated as “simultaneous” if different orders of application would converge to the same overall result, which is not the case for EF probing and Transfer. Here, as I will show, different orders will create different results, one of which the result of “parallel operations” purported in Chomsky 2008 conforms to. Furthermore, languages have no a priori reason to implement only one order. It is then likely that such ordering is a language-specific decision. Next I explore different logical consequences of each order, showing that they derive empirically observable footprints of language-specific ordering decisions.

3.1 EF-probing < TP-Transfers If a language orders EF-probing before TP-Transfers on a $C_{[EF]}$, the case of “Subject A'-extraction” would create a problematic configuration that likely results in a ban of such in this language. Recall that here subject raising associated with [$u\phi$] proceeds during TP-Transfers (Chomsky 2008:p.149): If an A'-movement targeting the potential subject proceeds before TP-Transfers, this movement would proceed from its base argument position, creating an A' chain like $\langle who_i, who_k \rangle$ in (1). TP then undergoes Transfers which encompasses subject-raising, creating the A chain $\langle who_j, who_k \rangle$ in (1). This is the same outcome as the “parallel operation” in Chomsky 2008:(ex.11-b). However, this particular chain configuration in (1), where a node (who_k) “branches out”, would in fact drastically increase the computational complexity that the chain resolution component (**CRC**) of the PF module has to handle. Note that it has been widely observed that a default priority for pronunciation is given to the structurally highest copy (Franks

1999:p.112; Deal 2016:ex.51 a.o.). This implies that CRC has to access the top-most node of every



chain. If all chains are non-branching, this is always just a matter of accessing the head of each chain, but if CRC were to handle branching chains like the one in (1), it must be able to identify all branching nodes

in any given chain, and compare the structural height of the heads of all branches, which implies much more computational complexity. Therefore, per Strong Minimalist Thesis, it is likely that **languages generally ban movements targeting a copied constituent** to avoid such branching chains, such that the computational burden on the PF module can be minimized. If so, such a problematic configuration potentially created by such an order would point to an apparent “ban on subject A’-extraction from its usual surface A-position (e.g. Spec,TP)”. This is in fact observed in some languages (Erlewine 2020 a.o.). Different from the “Spec-to-Spec anti-locality” explanation provided by Erlewine (2020), here the ban is understood as the A’-movement to Spec,CP targeting the potential subject bleeding its movement to Spec,TP during PF-Transfer.

3.2 TP-Transfer < EF-probing If a language orders TP-Transfer before EF-probing on a $C_{[EF]}$, then it seems like EF-probing here can’t access anything within TP due to the freezing effect of Transfers per PIC. However, note that PIC in fact only stipulates the inaccessibility of a phasal complement to operations in the next phase, while given (APH), its accessibility to *further operations* on the very same phase head has to be specified. One possibility is that a transferred TP is inaccessible to those operations as well, but that will predict that the order in §3.1 is the only possible order between Transfer and EF-probing, and all relevant languages have the resulted asymmetry between A’-movement of the subject and everything else, which is clearly not the case. Alternatively, I propose an amendment to PIC (**PIC-a**) that **only the edge (head & Spec) of the transferred complement of a phase head α is still accessible to all and only further operations on α** , such that the freezing effect of Transfer is maximally retained while limited materials within the transferred can still be accessed by the same phase head locally. With (PIC-a), it is predicted that in languages where Transfers precede EF-probing, anything that A’-moves to Spec,CP needs to have I-merged to Spec,TP at the point of TP-Transfer, such that it is still accessible to the subsequent EF-probing by C. This effect is observed in a few languages where in relative clauses, such a lower copy of a relative pronoun on Spec,TP exists and is pronounced under certain language-specific morphophonological conditions (Nez Perce: Deal 2016; Swahili: Liu 2024). Both of these works analyzed this phenomenon using the Lower Phase Conjecture (LPC) conceived by Deal (2016) that the TP complement of a relative C is a phase, while given the reasoning here, such a phenomenon arises from such a particular order between TP-Transfers and EF-probing on C. It also correctly predicts a lack of A’-extraction asymmetry between subjects and objects in these languages (Keach, 1980; Deal, 2016) that would otherwise arise given the other order discussed in §3.1. Notably, some cases from Dinka Bor like (van Urk 2015:p.104,ex.23-b) seem to suggest that a relativizing C ϕ -agrees with the relativized nominal, which apparently falsifies uF-inheritance, but in this cited example, the “agreement marker” -*kè* in fact surfaces with a tense marker and is mostly homophonous to a lower particle -*ké* that is elsewhere analyzed in van Urk 2015 as a partially deleted movement copy. This legitimizes a possibility of analyzing such “ ϕ -agreement on C” also as a lower A’-movement copy pronounced on Spec,TP, for the same reason assumed here for Swahili and Nez Perce.

4. Conclusion This study argues that, following the set of premises under Chomsky (2008)’s framework, languages differ in how EF-probing and phase-complement Transfer are ordered on a phase head, and each ordering has observable consequences.

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