Full Phase Transfer
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This paper highlights some disadvantages of Chomsky's (2004, 2008 and much recent work) theory of Transfer and proposes an alternative, suggesting that Transferring *the full phase,* which includes both the phase edge and phase-head complement, instead of *phase-head complement*, is theoretically and empirically preferable. Given the proposed timing of Transfer, this approach still allows a lower phase to be accessible to a higher phase. I argue that full phase Transfer can be derived from legibility conditions and third-factor principles. Notorious Transfer timing problems are also solved under this analysis, with additional welcome empirical consequences. This approach keeps the primary design features of Chomsky's Transfer theory, where Transfer is defined as a cyclic operation that applies to narrow-syntactic derivation D-NS and delivers a representational 'stage' of D-NS to the two interfaces, PHON and SEM.

Potential Problems of Phase-Head Complement Transfer:

Some potential problems of the classical Transfer theory have been noted, including by Chomsky, but to my knowledge they have never been aggregated for comprehensive and comparative evaluation as will be done here. First, there is a conceptual conflict between Chomsky's (2008) idea that the phase is where uninterpretable features (uFs) are valued and the idea that the edge of a phase is a locus for lexical items with uFs which must be accessible to further operations outside of that phase (**Problem [1]).** The other noted problem of Transferring only the phase-head complement is that "[this might be] a mere albeit empirically motivated stipulation which is in effect…construction or category specific…" (Obata, 2010). There seems to be no principled reason why our language faculty should Transfer the complement of the phase-head. Is the distinction between edge and complement of a phase in accordance with computational efficiency or any other third factors (Chomsky, 2005) or axioms of UG? (**Problem [2]**). In response to Problem 2, Chomsky claims that *v*P and CP can be explanatorily justified as the phases because *v*P and CP are natural units (phonologically and semantically) at the interfaces. But as Epstein (2007) notes, it is not *v*P and CP that are in fact Transferred under Chomsky's analysis, so the argument that *v*P and CP are natural phases due to their PHON and SEM independence does not go through, and TP and VP, the phase-head complements which <u>are</u> actually Transferred, are not semantically independent at the interfaces (**Problem [3]**). There is also a timing problem between uF-valuation and Transfer. Transfer cannot apply <u>after</u> uFs are syntactically valued, because such valued uFs will not be distinguishable from inherently, lexically valued features (in the absence of invoking some diacritic marking and/or a lookback device that is forbidden by the Inclusiveness Condition). But Transfer also cannot happen <u>before</u> uFs are valued as this will cause crash (Chomsky, 2001) (**Problem [4]**). Thus it is not clear when Transfer can possibly apply. Chomsky (2004, 2008) suggests a "simultaneity" approach, which eliminates intra-phasal "ordering", by taking valuation of uFs and Transfer to happen concurrently. However, this approach has many analytical problems as well, depriving us of derivational (computationally efficient) explanation (see e.g. Epstein & Seely, 2002).

Transferring the Full Phase:

All of the problems listed above are due to the same mechanism, namely, Transfer of the phase-head complement. Therefore, by assuming (*i*) full phase Transfer, Problems 1 through 3 are naturally avoided. (I'll return to the "Transfer timing" Problem 4). Phasal Transfer could be considered optimal phasal computation, which can by hypothesis be attributed to a third factor, as was the introduction of the concept of *phase*. A possible objection to our proposal is that in a derivation such as (1), it appears as if our system will Transfer the entire embedded CP

1) [$_{CP}$ *WHO* do you [$_{vP}$ *<who>* you think [$_{CP}$ *<who>* [$_{TP}$ John [$_{vP}$ <John> saw *<who>*]]]]]
immediately upon its cyclic completion, thereby preventing *who* in the lower phases, e.g. the embedded Spec CP, from moving higher. In other words, full phase Transfer appears to prohibit all successive cyclic movement, i.e. preventing all escape via the edge. To address this problem, I propose (*ii*) <u>Transfer of a full phase as soon as it does not contain uFs</u>. This is an optimal valuation-sensitive operation consonant with SMT "computationally efficient satisfaction of the interfaces"/"primacy of CI"; (*iii*) D-NS is able to keep track of two phases and no more (in Chomsky's system, the syntax correspondingly "sees" syntactic objects in two 'adjacent' phases), and the most efficient way should be that if necessary, the narrow syntax can keep two phases in its 'visible' workspace; and (*iv*) <u>if uFs are not valued inside a phase as it is cyclically built up, then the uFs may move upward to merge with a higher phase</u>, which is the root phase being built at that derivational point. Otherwise the derivation crashes. In (1) when *who* moves to the Spec of the embedded CP, the uFs associated with it, such as the unvalued [-Q] feature, also move to that position. Crucially, copies of *who* are left behind by movement (assuming third factor "no syntactic tampering") but they do not have unvalued features -- these are carried with the moved copy (see. e.g. Chomsky, 1995; Obata & Epstein, 2011). Note that at most two phases are allowed in the workspace as suggested in (*iii*), so the embedded CP can remain in the workspace when *who* occupies its Spec. This is desirable since unvalued features still occur on *who*. The movement of *who* to the edge of the *v*P phase in the main clause renders the embedded CP devoid of unvalued features; This embedded CP is then efficiently Transferred according to our assumption (*iii*). Thus, the implementable time to Transfer the full phase without causing crash is as soon as there is no uF inside the phase (finally resolving the "Transfer timing" Problem 4).

    Some Empirical Consequences of the Full Phase Transfer Approach:

    In this approach, the Spec positions of CP or *v*P remain as the natural landing positions for wh-movement. These positions are the escape hatches to the higher phase, given bottom up Merge-by-Merge cyclic derivation, although intermediate landing sites are not where the wh-phrase's uFs are valued. This explains why the copies of *who* are possible and obligatory even in intermediate phase Specs as in sentence (1). Furthermore, the theory offers an explanation for "criterial freezing" concerning wh-movement (Rizzi, 2015). For instance, in the *wonder* case is (2), *which book*, bearing a uF [-Q], moves to the Spec of a C bearing a [+Q] feature, where the [-Q] feature is valued, so *which book* cannot move further, due to its immediate Transfer as a member of the embedded CP (*iv*). Nevertheless, if *which book* moves to a CP without [+Q] feature, it further raises until its uF is valued, to avoid crash (*think* case).

2) a. Bill *wonders*/**thinks* [[which book]$_{[-Q]}$ [__ was published this year]]

    b. Which book$_{[-Q]}$ does Bill **wonder/think* [__ [__ was published this year]]

In addition, the matrix phase edge (main clause Spec of CP and C) can now be Transferred without any special stipulation. Under standard Transfer theory, the edge of matrix CP can never be Transferred to the interfaces for semantic and phonological interpretation unless we stipulate a special rule to Transfer the edge of the matrix CP (this could be considered a fifth problem, i.e. **Problem [5]** for the previous theory). Finally, we now predict that movement of an entire phase such as CP is possible. As Obata (2009) notes, an entire CP phase, rather than its complement TP, can move to a higher phase (3a & b). But if it is only the complement of the phase-head that is Transferred, it is incorrectly predicted that complete CPs cannot move, since their complement TP is Transferred before the CP as a whole can undergo (internal) Merge. (**Problem [6]**).

3) a. [[$_{CP}$ That John bought the book] was denied __]. (Obata, 2009, 2014)

    b. *[[$_{TP}$ John bought the book] was denied [$_{CP}$ that __]]