Transfer as Self Pair-Merge

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1. Introduction

Since a language is a computational system connecting sound and meaning, the syntactic objects (SOs) constructed by Merge must be mapped for interpretation to the two interfaces: the Sensory-Motor (S-M) Interface and the Conceptual-Intentional (C-I) Interface. The operation that does this mapping is called Transfer, which applies at phase level, i.e. CP and vP. It has been claimed that what has been transferred is no longer accessible to the syntactic computation, which is formulated as the Phrase Impenetrability Condition (PIC). A question arises how an SO becomes inaccessible to the syntactic computation after Transfer. Chomsky (2000, 2004, 2008) proposes the "cashing-out" approach to Transfer, which claims that Transfer removes the transferred SOs from the workspace, thereby making them inaccessible to further syntactic operations. This paper proposes that the transferred SOs are still in the workspace but made invisible by application of Self Pair-Merge. The Self Pair-Merge approach to Transfer is supported by an asymmetry between phase-sensitive syntactic dependencies like Agree/Move and phase-insensitive ones with respect to the PIC. It is shown that the Self Pair-Merge approach is conceptually desirable in that it only makes use of Merge, an independently motivated and indispensable operation. If the proposed analysis is on the right track, it gives further support for Chomsky's (2013a; 2014) Free Merge system.

The organization of this paper is as follows. Section 2 explicates the "cashing-out" approach to Transfer, showing that it can correctly capture the fact that Agree/Move is subject to the PIC. Section 3 shows...
that there are phase-insensitive syntactic dependencies that cannot be accommodated under the "cashing-out" approach. Section 4 proposes the Self Pair-Merge approach to Transfer, arguing that it accounts for the asymmetry between phase-sensitive syntactic dependencies and phase-insensitive ones with respect to the PIC. Section 5 makes a concluding remark.

2. The "Cashing-Out" Approach to Transfer

Chomsky (2000, 2004, 2008) adopts the "cashing-out" approach to Transfer, claiming that Transfer removes the phase head complement from the workspace, thereby being no longer accessible to the syntactic computation, as represented in (1) (where X is a phase head):

\[
(1) \quad \begin{array}{c}
\text{XP} \\
\text{YP} && \text{X'} \\
\text{X} && \text{ZP} \\
\text{X} \\
\end{array} \quad \text{Transfer} \quad \rightarrow \quad \begin{array}{c}
\text{XP} \\
\text{YP} && \text{X'} \\
\text{X} \\
\end{array}
\]

In (1), ZP, which is the complement of the phase head X, undergoes Transfer, being removed from the workspace; ZP is inaccessible to further syntactic computation. The "cashing-out" approach straightforwardly derives the effects of the Phase Impenetrability Condition (PIC), since the phase head complement, which is literally removed from the workspace by Transfer, is no longer accessible from outside the phase:

\[
(2) \quad \text{The Phase Impenetrability Condition (PIC)}
\]

\[
(\text{Chomsky 2000: 108})
\]

In phase \( \alpha \) with head H, the domain of H is not accessible to operations outside \( \alpha \), only H and its edge are accessible to such operations.
The following subsections look at evidence to show that Move and Agree, being syntactic operations, are subject to the PIC.

2.1 Move and the PIC

Move, a syntactic operation, is subject to the PIC, proceeding in a successive cyclic manner using phase edges as "escape hatches," as shown below:

(3) a. What do you think that John read?
   b. \[ \text{CP what [TP did you [VP t'] [think [CP t'' [that [TP John [VP t' [read t]]]]]]] } \]

In accordance with the PIC (2), the wh-phrase what originates in the object position of read, and then moves to the edge of each phase before reaching the Spec of the matrix C, its final landing site.

There is evidence for successive cyclic movement. The first evidence comes from anaphoric reconstruction facts (Barss 1986: 23):

(4) [Which pictures of \textit{himself}_{i,j} did John, think that \textbf{Fred} liked \textit{t}_k?]

(4) is ambiguous in that the reflexive \textit{himself} can refer to either \textit{John} or \textit{Fred}. This ambiguity straightforwardly follows if we assume that \textit{wh}-movement proceeds by phase. The representation of (4) under the copy theory of movement is shown below:

(5) \[ \text{CP Which pictures of himself [TP did John [VP which pictures of himself [think [CP which pictures of himself [that [TP Fred [VP which pictures of himself [liked which pictures of himself]]]]]]]]} \]

In (5), the copy in the original position or the one in the embedded \textit{VP} edge can be used for interpretation of \textit{Fred} as the antecedent of \textit{himself}. 
In addition, *John* can be the antecedent of *himself* thanks to the copy in the embedded CP edge or the one in the matrix vP edge.

Second, morphological reflexes of successive cyclic *wh*-movement in languages like Chamorro and Irish provide evidence to successive cyclic movement (Chung 1998; McCloskey 1990; 2002). In Irish, although the declarative complementizer is *go* 'that' as shown in (6a), it is morphologically realized as *aL* if a *wh*-phrase moves into its Spec as shown in (6b) (McCloskey 2002: 189):

(6) a. Creidim gu-r inis sé bréag.
    believe.1.SG go-Past tell he lie
    'I believe that he told me a lie.'

b. Céacu ceann a dhíol tú?
    which one aL sold you
    'Which one did you sell?'

As exemplified by (7), *aL* also appears in all C positions along a way of A'-dependency:

(7) [an t-ainm] [a hinnseadh dúinn [a bhí t| ar an áit]]
    the name aL was.told to.us aL was on the place
    'the name that we were told on the place.'
    (McCloskey 2002: 190)

This shows that an empty operator undergo successive cyclic movement from the original position to the final landing site via phase edge.

Third, as argued by McCloskey (2000), *wh*-quantifier float facts in West Ulster English give support for successive cyclic movement:

(8) **What** did you get **t all** for Christmas?  (McCloskey 2000: 58)

In (8), the floating quantifier *all* is associated with the interrogative pronoun *what* not with the subject *you*. Given Sportiche's (1998) analy-
sis that a floating quantifier and its associate form a constituent, examples like (9c) show that \textit{wh}-movement undergoes a successive cyclic movement via CP edge, since \textit{all} marks an intermediate position:

(9) a. \textbf{What all} did he say (that) he wanted \textit{t}?
   b. \textbf{What} did he say (that) he wanted \textit{t all}?
   c. \textbf{What} did he say \textit{all t'} (that) he wanted \textit{t}? 

(McCloskey 2000: 61)

Fourth, \textit{wh}-fronting in Belfast English triggers inversion not only in the clause where the \textit{wh}-phrase is spelled out but also in lower clauses along the movement path, as shown in (10) (Henry 1995: 108):

(10) a. What did Mary claim [did he steal \textit{t}]?
   b. I wonder [what did John think [would he get \textit{t}]].

The embedded inversion effects show that \textit{wh}-movement moves in a successive cyclic fashion through CP edge.

Finally, successive cyclic movement is supported by \textit{wh}-copying and partial \textit{wh}-movement facts in German:

(11) a. \textit{Wh}-copying
   \begin{quote}
   \textit{Wen} glaubst Hans, \textbf{wen} Jakob \textit{t} gesehen hat?
   whom think Hans whom Jakob seen 'has
   Lit. 'Whom does Hans think whom Jakob saw?'
   \end{quote}
   b. Partial \textit{wh}-movement
   \begin{quote}
   \textit{Was} glaubt Hans \textbf{mit wen} Jakob jetzt \textit{t} spricht?
   WHAT believe Hans with whom Jakob now talk
   Lit. 'WHAT does Hans believe with whom Jakob is talking now?'
   \end{quote}

(McDaniel 1988: 569)

These phenomena can be explained in a principled way if we assume that the intermediate \textit{wh}-phrases in the embedded Spec of C are some
sort of a reflex of successive cyclic movement.

2.2 Agree and the PIC

Agree, another syntactic operation, should also be subject to the PIC. Chomsky (2008) states that long-distance (PIC-violating) agreement cases are rare. Contrary to Chomsky’ statement, long-distance agreement cases are widely attested. First, there are languages like Blackfoot and Chukchee where Agree is allowed to reach into a finite clause (see, among others, Stjepanović and Takahashi 2001; Legate 2005; Bošković 2007):

(12) Hindi (Boekcx 2004, Bhatt 2005)
Vivek-ne [kitaab parh-nii] chaah-ii.
Vivek-Erg book.F read-Inf.F want-Pfv.FSg
‘Vivek wants to read the book.’
(Bhatt 2005: 760)

(13) Itelmen
Na əntxa-βum+nn m̩ama jeβna-s.
he forget-1SG.OBJ-3.CLO me meet-Inf
‘He forgot to meet me.’
(Bobaljik and Wurmbrand 2005: 846)

(14) Blackfoot
Kits-iksstakk-a omá noxkówa m-áxk-itáp-aapiksistaxsi kiistóyi omi.
2-want-3 my.son.3 3-might-toward-throw you
ball-4
‘My son wants to throw the ball to/at you.’
(Bošković 2007: 614)

(15) Chukchee
ənan qəlyiʃu longərkə-nin-et [iŋqun o-rətəmənəv-nen-at qora-t].
he -inst regret-3-Pl that 3SG-lost-3-Pl reindeer-Pl
‘He regrets that he lost the reindeers.’
(Bošković 2007: 613)
In (12), the perfective feminine affix -i on the matrix verb agrees with the embedded feminine object kitaab 'book'. In (13), the 1st person singular objective affix -rum on the matrix verb agrees with the embedded 1st person singular object kma 'me'. In (14), the 2nd person prefix kits- on the matrix verb agrees with the embedded 2nd person element kiistóyi 'you'. In (15), the plural suffix -et on the matrix verb agrees with the embedded plural object quora-t 'reindeer PL'. In (16), the matrix verb agrees in class with the absolute object magalu 'bread'.III.Abs in the complement clause, accompanying the class III agreement prefix b-. The examples in (12–16) exhibit long-distance agreement relations across a phase boundary, i.e. the embedded CP phase; this violates the PIC.

It has been claimed by, among others, Polinsky and Potsdam (2001), Boeckx (2004), Bhatt (2005), and Richards (2012), however, that the long-distance (PIC-violating) agreement facts in (12–16) are only apparent. They can be accommodated under alternatives, i.e. different local analyses depending on the properties of long-distance agreement. In other words, apparent long-distance agreement is a non-unified phenomenon. Polinsky and Potsdam (2001) proposes an LF-topicalization analysis of Tsez long-distance agreement. Let us consider (16) as an example. Given that clause peripheral functional structures like CP and TopP are only present when required, their analysis assigns LF-representation (17) to (16):

(17) Eni-r [TOP magalu [TP už-a t bāc'ruhi]] b-ixyo.
    mother-Dat bread.III.Abs boy-Erg III.ate III-know
In (17), the embedded object *magalu* 'bread.III.Abs' undergoes covert topicalization to the Spec of Top, where local agreement with the matrix verb is possible. Polinsky and Potsdam observe that long-distance agreement is not available in those contexts where topicalization is blocked in the embedded clause:

   IV-know
   ‘The mother knows where the thief stole the money.’

   III-know
   ‘The mother knows where the thief stole the money.’
   (Polinsky and Potsdam 2001: 634)

   ‘The mother knows that the boy ate the bread.’

   ‘The mother knows that the boy ate the bread.’
   (Polinsky and Potsdam 2001: 635)

   feed-Caus-Presprt-Nmlz IV-know
   Lit. ‘The mother knows that, the hunter, the shepherd made (him) feed the cow.’
Lit. ‘The mother knows that, the hunter, the shepherd made (him) feed the cow.’

(Polinsky and Potsdam 2001: 636)

In (18a), the matrix verb agrees with the clausal interrogative complement as class IV; the result is acceptable. As (18b) shows, however, long-distance agreement with the embedded object is blocked when a *wh*-phrase is present in the embedded clause. In (19a), the embedded clause is marked with nominalizing suffix, and long-distance agreement is possible. In (19b), however, long-distance agreement is impossible when the embedded clause is marked by an overt complementizer. When an overtly topic-marked phrase is present in the complement clause, agreement with the clausal complement is allowed as shown in (20a), but long-distance agreement with an embedded object is blocked as shown in (20b).

Bošković (2003; 2007) argues that long-distance agreement facts in Tsez can be accounted for by the PIC without recourse to LF topicalization. Given that CP, but not TP, is a phase, the matrix v could agree with an object in the complement of T but not in the complement of C. The (b) examples of (18–20) are cases where CP is independently required; they are ruled out by the PIC. In (18b), the embedded interrogative clause must be CP headed by an interrogative C; otherwise, it cannot be interpreted as a question. The embedded clause in (19b), where the overt C appears, is CP. If we assume that topicalization involves movement to the Spec of C, then (20b) must also involve CP. Bošković argues that the declarative clauses without overt complementizers like (16) are TPs. Long-distance agreement is allowed in (16), since there is no phase boundary between the matrix verb and the embedded object if the latter stays in the embedded vP edge. As sug-
gested by Richards (2012), Blackfoot long-distance agreement like (14) is also amenable to this analysis (see Frantz 1978).

Next, long-distance agreement in Hindi and Itelmen can be accommodated under a local analysis in terms of restructuring (Bobaljik and Wurmbrand 2005; Bhatt 2005; Boeckx 2004; 2009). In these languages, long-distance agreement is possible only into a non-finite complement of so called “restructuring verbs,” as shown in (12) and (13) (repeated here as (21) and (22) respectively):

(21) Hindi
Vivek-ne [kitaab parh-nii] chaah-ii.
Vivek-Erg book.F read-Inf.F want-Pfv.FSg
‘Vivek wants to read the book.’

(22) Itelmen
Na ontxa-\textbf{	extsc{b}um}\textsubscript{n}in kma je\textsc{n}a-s.
he forget-1Sg.Obj=3Cl me meet-Inf
‘He forgot to meet me.’

Agreement across a finite boundary is not allowed, as shown in (23b) and (24):

(23) Hindi
a. Firoz-ne soch-aa ki [Mona ghazal gaa-tii
Firoz-Erg think-Pfv.MSg that Mona.F ghazal.F sing-Hab.F
hai]
be.Prs.3Sg
‘Firoz thought that Mona sings ghazals.’
b. *Firoz-ne soch-ii ki [Mona ghazal . gaa-tii
Firoz-Erg think-Pfv.FSg that Mona.F ghazal.F sing-Hab.F
hai]
be.Prs.3Sg
‘Firoz thought that Mona sings ghazals.’

(Bhatt 2015: 776)
(24) Itelmen
na k-netxa-knen kma k'-jeõna-an.
he Prt-forget-Intrans me Prt-meet-Trans
'He forgot that he met me.'

(Bobaljik and Wurmbrand 2005: 847)

In (23), the embedded clause is a finite CP, which constitutes a phase; agreement between the matrix verb and the embedded object is blocked by the PIC. It should be noted that in (23a), the matrix verb displays default agreement that corresponds to 3MSg. In (24), no long-distance agreement occurs; the matrix verb is given in its intransitive form. Furthermore, long-distance agreement into non-restructuring infinitives is not allowed either, as shown in (25):

(25) a. Anjum-ne Saddaf-ko [chïõhi liõh-ne]-ko
     Anjum-Erg Saddaf-Dat letter.F write-Inf.Obl-Dat
     kah-aa thaa
     say-Pfv.MSg be.Pst.MSg
     'Anjum told Saddaf to write a letter.'

b. Anjum-ne Saddaf-ko [chïõhi liõh-ne]-ko
     Anjum-Erg Saddaf-Dat letter.F write-Inf.Obl-Dat
     kah-ii thii
     say-Pfv.F be.Pst.F
     'Anjum told Saddaf to write a letter.' (Bhatt 2015: 776)

Bobaljik and Wurmbrand (2005) state that long-distance agreement in Itelmen is restricted to verbs that are crosslinguistically typical members of the verb of restructuring such as modals, aspectual verbs (begin, stop), causatives (which are affixal) and certain lexical verbs such as try, want, and forget. If we assume with Wurmbrand (2001) that restructuring infinitives are reduced structures which do not involve projection of an embedded subject, then restructuring infinitives are bare VPs. Agreement into restructuring infinitives is local in that it does not cross
any CP or vP phase boundary.

Finally, as for long-distance agreement in Chukchee like (15) (repeated here as (26)), Bobaljik (2006) proposes a proxy agreement analysis, where a null proleptic object is located in the matrix clause and coreferent with the embedded object.

(26) ənan qałyiyu ləŋərkə-nin-et [iŋqun o-rətəmnev-nen-at qora-t].

\[ \text{he-inst regret-3-Pl that 3Sg-lost-3-Pl reindeer-Pl} \]

'He regrets that he lost the reindeer.'

As evidence in favor of his proxy agreement analysis, Bobaljik presents (27) (where 3 > 3 is a portmanteau agreement morpheme for 3rd person subject and object, and -\(E\)- represents an epenthetic vowel) (Bobaljik 2006: 317):

(27) ənan qałyiyu ɬəŋə-rkən-in-et, iŋqun rətəmnev-nen-at

\[ \text{he.Erg sorry/pity/regret Aux-E-Past-3>3-Pl because lose-3>3-Pl qora-t} \]

\[ \text{reindeer-Pl} \]

'He feels sorry (for them), that he lost (them), the reindeer.'

Although it appears that the matrix light verb ɬəŋə-rkən-in-et 'Aux-E-Past-3>3-Pl' agrees directly with the embedded plural object qora-t 'reindeer-Pl', Bobaljik argues that the matrix verb agrees with the null proleptic object in the matrix clause, which is coreferent with the embedded object. He argues that there are four arguments for his analysis; (i) the lack of the intervention effect with the embedded subject; (ii) the choice of complementizer (normally glossed as 'because' or 'in order to' rather than 'that'); (iii) the property of the transitive light verb construction with emotion (which normally takes a DP complement rather than a CP complement); (iv) the word order of the complement clause, which normally appears preverbally (SOV) rather than postverbally (SVO) as in (27). Then, long-distance agreement in Chukchee can also
be accommodated under a local analysis.

English existential constructions like (28) also look as if they involve long-distance agreement:

(28) There seem to have appeared two problems.

(Bošković 2007: 615)

In (28), there is an Agree relation between the matrix T and the expletive’s associate two problems. As pointed out by Richards (2012), Agree in the existential construction can cross a potentially infinite number of phases:

(29) There seem to me to appear to John to be believed by Bill ... to be several dogs in the garden. (Richards 2012: 150)

In (29), an Agree relation is established between the matrix T and the expletive’s associate several dogs in the most deeply embedded clause. If unaccusative/passive vPs are not phases as argued by Chomsky (2000), neither (28) nor (29) involves long-distance agreement. Legate (2003), however, presents evidence that unaccusative/passive vPs should count as phases, one of which is based on reconstruction effects:

(30) [At which of the parties he invited Mary to] was every man,
[\text{\textsc{vp} \textit{t'} introduced t to her}]? (Legate 2003: 507)

(31) a. Every organizer’s embarrassment escaped the invited speaker at the conference where he mispronounced her name.

b. [At which conference where he mispronounced the invited speaker’s name] did every organizer’s embarrassment [\text{\textsc{vp} \textit{t'} escape her}]?

(Legate 2003: 508)

In (30), the \textit{wh}-phrase contains both the pronoun \textit{he}, which is bound by every man, and the R-expression \textit{Mary}, which must not be c-commanded
by the coreferential pronoun her. In (31b), where escape means ‘forget’, the wh-phrase contains both the pronoun he, which is bound by every organizer, and the R-expression the invited speaker, which must not be c-commanded by the coreferential pronoun her. Such a position is only available if the wh-phrase undergoes successive cyclic movement, leaving its copy at the unaccusative/passive vP edge in accordance with the PIC. If Legate is correct in claiming that passive and unaccusative vPs as well as transitive vPs should be considered phases, the agreement relation in the existential construction violates the PIC, since it crosses more than one vP phase boundary. As a solution to this problem, Richards (2012) proposes that passive/unaccusative vPs, being Φ-less and thus defective, transfer only to PF but not to LF. Under his analysis, passive/unaccusative vPs act as phases for overt successive cyclic movement, but not as phases for Agree. Hence, long-distance Agree in the existential construction takes place without violating the PIC.

The above discussion has shown that Agree is constrained by the PIC and that the apparent long-distance agreement cases can be accounted for by different local analyses depending on the properties of long-distance agreement. One could argue that long-distance agreement is a unified phenomenon that can be handled with by a local analysis in terms of Cyclic Agree in the sense of, among others, Legate (2005) and Béjar and Rezac (2009). Under a Cyclic Agree analysis, long-distance agreement arises from a sequence of local Agree steps, as schematically represented in (32):

\begin{equation}
(32) \quad [\ldots \beta \ldots \alpha \ldots \text{DP} \ldots]\n\end{equation}

\[\begin{array}{c|c}
\text{Agree} & \text{Agree} \\
\end{array}\]

There are reasons to case doubt on the validity of a Cyclic Agree analysis (see Richards 2012). First, we need to constrain Cyclic Agree so that it does not overgenerate. In Tsez, for example, if the embedded clause projects up to CP, long-distance agreement with the embedded object is
not allowed as shown in the (b) examples of (18-20). An additional constraint is needed to prevent Cyclic Agree from applying in such cases, which is undesirable. Second, long-distance agreement is optional, as exemplified by (33) and (34):

(33) Hindi
a. LDA
   Ram-ne [roṭii khaa-nii] chaah-ii
   Ram-Erg bread.F eat-Inf.F want-Pfv.FSg
   'Ram wanted to eat bread.'

b. No LDA
   Ram-ne [roṭii khaa-naa] chaah-aa
   Ram-Erg bread.F eat-Inf.M want-Pfv.MSg
   'Ram wanted to eat bread.'
   (Bhatt 2005: 76)

(34) Itelmen
a. LDA
   Na əntxa-þum+nm kma jeβna-s. (= (13))
   he forget-1Sg.Obj=3.Cl me meet-Inf
   'He forgot to meet me.'

b. No LDA
   Na əntxa-in kma jeβna-s. (= (13))
   he forget-3Sg.SUBJ me meet-Inf
   'He forgot to meet me.'
   (Bobaljik and Wurmbrand 2005: 846)

While the matrix verb and the embedded object undergoes long-distance Agree in (33a, 34a), the matrix verb in (33b, 34b) exhibits default agreement. Under a Cyclic Agree analysis, the optionality of long-distance agreement must be due to optional application of an intermediate step of Cyclic Agree. Such an optional operation, however, is dubious from a minimalist point of view. It is important to point out for the present purpose, however, that even if Cyclic Agree analysis is on the right track, we can still maintain the view that Agree is constrained
Bošković (2007) and Putnam and Stroik (2009) claim that the PIC is a condition on the PF side, therefore regulating Move but not Agree. Their analyses can capture the apparent long-distance agreement facts, since Agree may apply non-locally, crossing phase boundaries freely. Richards (2012), however, casts doubt on their PF analysis of the PIC, observing that the Agree counterpart of superraising like (35a) is unacceptable just like Move superraising cases like (35b). In other words, long-distance agreement is not allowed in (35a) (Richards 2012: 139-140):

(35) a. *There are likely [that it seems [to be several men in the garden]].

  b. *Several men are likely [that it seems to be t in the garden].

He argues that if the PIC constraints Agree as well as Move, we can rule out overt and covert superraising cases like (35a, b) in a unified way. This is because under Richard’s analysis, the embedded CP, not being Φ-defective, functions as a PF and LF phase; (35a, b) are excluded by the PIC. Bošković (2007) would claim that if we assume Agree Closest, superraising, either overt or covert, can be ruled out by the defective intervention effect without recourse to the PIC. Richards (2004), however, argues against defective intervention effects. He claims that the idea that inactive elements induce intervention effects is an unnecessary complication of the theory, since the goal should either be a potential goal or it should not be. He also shows that the evidence that has been presented in favor of defective intervention effects, i.e. quirky subjects, expletives, and shifted wh-objects, is amenable to alternative analyses (see Richards 2004 for further details).

Furthermore, if Agree applies freely across phase boundaries, we lose a plausible PIC account of the contrast between (18–20a) and (18–20b) in Tsez long-distance agreement, which indicates that long-distance agreement is not allowed when the embedded clause projects
up to CP. It should also be noted that agreement across more than one clause boundary is not allowed in Tsez as shown in (36), which the free Agree approach would wrongly predict is possible:

(36) Babir X₁b [enir X₁a [užā magalu bāc’ruži] b-iyxosi-li] father X.III mother X.III boy bread.III.Abs ate III-know-Nmlz r/*b-iyxo IV/III-know

'The father knows the mother knows the boy ate bread.'

(Polinsky and Potsdam 2001: 618)

In (36), the matrix verb cannot undergo agreement with the object in the most embedded clause.

3. Phase Insensitive Dependencies

The previous section has shown that both Agree and Move are subject to the PIC, which straightforwardly follows form the "cashing-out" approach to Transfer, where transferred SOs are literally removed from the workspace and thus no longer accessible to any syntactic computation. In contrast with phase-sensitive syntactic dependencies like Agree and Move, however, there are syntactic dependencies that are not subject to the PIC, thereby being phase-insensitive.

First, long-distance anaphoric dependencies are phase insensitive in that they can be established across a phase boundary, as exemplified below:

(37) John₁ expects [that pictures of himself₁ will be on sale].

(38) John₁-wa [Mary₁-ga zibunᵢᵢ都没有 heya-de benkyoo-siteiru to] John-Top Mary-Nom self-Gen room-in studying Comp omotteiru

Lit. ‘John₁ thinks that Mary₁ is studying in self₁/₁'s room.’
In the English example (37), the reflexive *himself* takes its antecedent *John* across the embedded CP phase boundary. In the Japanese example (38), the reflexive *zibun* 'self' can take either the matrix subject *John* or the embedded subject *Mary* as its antecedent. In the former case, the anaphoric dependency is established across the two phase boundaries, *i.e.* the embedded *vP* and *CP.* One could argue that English long-distance anaphor in (37) is a case of long-distance agreement in that it can be accommodated under Φ-feature agreement between the matrix *T* and the reflexive, as advocated by Chomsky (2008) and Reuland (2011). It is highly questionable, however, whether such an Agree analysis of anaphor can be extended to languages like Japanese that do not have any Φ-feature agreement.

Second, the Binding Condition C effects are observed when an R-expression has a c-commanding co-referential expression within the whole structure containing it. In other words, Binding Condition C is phase insensitive, as shown below:

(39)  
\begin{align*}
  \text{(a) } & \text{*He} & \text{thinks [that John} & \text{is honest].} \\
  \text{(b) } & \text{*He} & \text{says [that Mary thinks [that Suzy claimed [that John} & \text{is leaving]]].}
\end{align*}

In (39), the embedded subject *John*, being an R-expression, takes the matrix subject as its antecedent across one or more phase boundaries, but it is still ruled out by Binding Condition C; Binding Condition C is phase-insensitive.

Third, a quantificational expression can license a bound variable across a phase boundary:

(40)  
\begin{align*}
  \text{(a) } & \text{Everyone} & \text{thinks [that he} & \text{is sick].} \\
  \text{(b) } & \text{Everyone} & \text{told John [that people knew [that he} & \text{should leave]].}
\end{align*}

(41)  
\begin{align*}
  \text{(a) } & \text{Who} & \text{thinks [that he} & \text{is sick].} \\
  \text{(b) } & \text{Who} & \text{told John [that people knew [that he} & \text{should leave]].}
\end{align*}
In (40) and (41), the quantifier *everyone* and the *wh*-phrase *who* license the pronoun *he* within the embedded clause as a bound variable across one or more phase boundaries. This shows that bound variable licensing is also phase insensitive.

Finally, a *wh*-phrase in *wh*-in-situ languages like Chinese and Japanese can be licensed by an interrogative C across a phase boundary:

\[
\begin{align*}
\text{(42) a. } & \text{John-wa [Mary-ga nani-o katta to] omotteiru no} \\
& \text{John-Top Mary-Nom what-Acc bought C think } Q \\
& \text{‘What does John think Mary bought?’} \\
\text{b. } & \text{John-wa [Mary-ga [Suzy-ga nani-o katta to] itta to]} \\
& \text{John-Top Mary-Nom Suzy-Nom what-Acc bought C said C} \\
& \text{omotteiru no} \\
& \text{think } Q
\end{align*}
\]

In (42), the *wh*-phrase in-situ *nani* 'what' within the embedded clause is licensed by the matrix interrogative C *no* across phase boundaries.

One might argue that these dependencies are not syntactic but semantic or pragmatic, therefore being insensitive to phase boundaries. In order to establish these dependencies, however, the notion of c-command, which is defined based on syntactic structure, is involved:

\[
\begin{align*}
\text{(43) } & \text{[John}_1\text{-no hahaoya}_1\text{]-wa [Mary}_k\text{-ga zibun}_v/y/k\text{-no heya-de}} \\
& \text{John-Gen mother-Top Mary-Nom self-Gen room-in} \\
& \text{benkyoo siteiru to] omotteiru} \\
& \text{studying Comp think} \\
& \text{Lit. ‘[John}_1\text{’s mother}_j\text{] thinks that Mary}_k\text{ is studying in}} \\
& \text{self}_v/y/k\text{’s room.’} \\
\text{(44) } & \text{[His}_i\text{, mother] likes John}_1. \\
\text{(45) } & \text{*[This report card about every student}_j\text{] was sent out to his}_i/y/k\text{/her}_i\text{ parents.} \\
& \text{(Huang 1995: 141)}
\end{align*}
\]
In (43), the reflexive zibun 'self' can take either John-no ha haoya 'John's mother' or Mary, but not John, as its antecedent. This is because both the matrix subject John-no ha haoya 'John's mother' and the embedded subject Mary c-command the reflexive zibun 'self' but the prenominal genitive John within the matrix subject does not. In (44), the R-expression John is not c-commanded by his; no Binding Condition C effect emerges. (45) has the reading that this report which contains information about every student was sent out (only one report), but does not have the reading that every student is such that this report about him was sent out (for example, five reports for five students). In other words, every student can only take scope over the relative clause containing it, but does not have scope over the matrix clause containing the pronoun probably due to the Specificity Condition. This indicates that every man does not c-command the pronoun even at LF; the former does not license the latter as a bound variable. In (46), the wh-in-situ dare 'who' is not c-commanded by the embedded interrogative C ka; the former is not licensed by the latter. These facts show that these phase-insensitive dependencies are syntactic in nature.

These phase-insensitive syntactic dependencies cannot be accommodated under the "cashing-out" approach to Transfer. This is because an SO transferred at each phase level is literally removed from the workspace so that we cannot capture interphrasal dependencies unless there is a procedure by which a "cashed-out" structure find its way back to its interpretation site. Uriagereka (1999) claims that under his Multiple Spell-Out model, where non-complements, i.e. specifiers, are spelled out, agreement with a head plays a role in gluing together what is spelled out with its interpretation site, which is a reasonable path to explore. It should be noted, however, that what is transferred under the present model is not a specifier but the complement of a phase head,
which does not involve agreement with the head. Hence, there seems to be no plausible way of getting back a "cashed-out" SO to its interpretation site; the "cashing-out" approach to Transfer is untenable.

4. A Proposal

It was shown that the asymmetry between phase-sensitive syntactic dependencies like Agree/Move and phase-insensitive ones with respect to the PIC cannot be captured by the "cashing-out" approach to Transfer. Another drawback of the "cashing-out" approach is that "removal from the workspace" in the "cashing-out" approach to Transfer is an operation that is not independently motivated and thus lacks a conceptual warrant; such an operation should be eliminated from the optimal design of language according to the Strong Minimalist Thesis. This section proposes the Self Pair-Merge approach to Transfer, arguing that it straightforwardly captures the asymmetry between phase-sensitive and phase-insensitive syntactic dependencies.

4.1 Transfer as Self Pair-Merge

There are two kinds of Merge; Set-Merge and Pair-Merge (see, among others, Chomsky 2004; 2008). Set-Merge takes two SOs $\alpha$ and $\beta$ as the input, and yields the unordered set $\{\alpha, \beta\}$ as the output. Pair-Merge, on the other hand, takes two SOs $\alpha$ and $\beta$ as the input, and yields the ordered pair $<\alpha, \beta>$ as its output. It has been claimed by, among others, Guimarães (2000), Kayne (2010), and Adger (2013) that nothing in the system of Merge prevents $\alpha$ from being identical with $\beta$, which means that a SO $\alpha$ may merge with itself. They propose Self Set-Merge, claiming that when Self Set-Merge applies to $\alpha$, its output is $\{\alpha, \alpha\}$. The set $\{\alpha, \alpha\}$ is identical to the set $\{\alpha\}$ according to the Extensionality Axiom of Set Theory, since both of them have exactly the same membership. In other words, if the operands of Set-Merge are identical, the output is a singleton set:
I argue that the same reasoning applies to Pair-Merge. There is nothing that prevents the operands of Pair-Merge from being identical, which means that Self Pair-Merge is available. I propose the Self Pair-Merge approach to Transfer, where Self Pair-Merge applies to the complement of a phase head. In (48), for example, when Transfer applies to the phase XP, Self Pair-Merge applies to the phase head complement ZP, yielding \( \langle ZP, ZP \rangle \), as represented below:

Pair-Merge has been introduced to account for a property of adjunct structure; a Pair-Merged adjunct is on a “separate plane” so that an element inside the adjunct is not accessible from its outside by syntactic operations like Agree and Move (see Chomsky 2004). Move cannot access an element within an adjunct irrespectively of whether or not the adjunct constitutes a phase, as has been formulated as the Adjunct Condition:

(49)

\[ \begin{align*}
\text{a. } & *\textbf{Who} \text{ did John get jealous [before I talked to } t] \text{?} \\
\text{b. } & ?*\textbf{Which concert} \text{ did you sleep [during } t] \text{?}
\end{align*} \]

In (49), for example, the \textit{wh}-phrase is extracted out of the adjunct through \textit{wh}-movement; the result is deviant. Agree cannot access an element within an adjunct, either. In Tsez, for example, long-distance agreement is blocked when the trigger is within an adjunct clause, as
kid 'girl.Abs' in (50a). This is in contrast with (50b), which shows that when the agreement trigger is in the matrix object, the result is acceptable (Polinsky and Potsdam 2001: 607):

\[
(50) \begin{align*}
\text{a. } & \text{*[kid } y-\text{āy-zal]} \text{ eni-r xabar} \\
& \text{girl.Abs II-arrive-WHEN mother-Dat news.III.Abs} \\
& \text{II-know-Pst.Evid} \\
& \text{‘When the girl arrived, the mother found the news.’}
\end{align*}
\]

\[
\begin{align*}
\text{b. } & \text{[kid } y-\text{āy-zal]} \text{ eni-r xabar} \\
& \text{girl.Abs II-arrive-WHEN mother-Dat news.III.Abs} \\
& \text{III-know-Pst.Evid} \\
& \text{‘When the girl arrived, the mother found the news.’}
\end{align*}
\]

Since Agree and Move cannot access an element within Pair-Merged SOs, it follows from the Self Pair-Merge approach to Transfer that Agree and Move cannot access an element within Transferred SOs; we can derive the fact that phase-sensitive syntactic dependencies like Agree and Move are subject to the PIC.

### 4.2 An Account of the Phase Insensitive Dependencies

The Self-Pair Merge approach to Transfer can also accommodate the phase-insensitive syntactic dependencies. It is important to point out that unlike phase-sensitive dependencies like Agree and Move, the phase-insensitive ones can access an element within an adjunct, a Pair-Merged SO, irrespectively of whether or not the adjunct constitutes a phase, as shown below:
(51) Long-distance Anaphoric Dependency
a. John₁-wa [Mary₁-ga zibun₁/₁-no heya-de benkyoo siteita node]  
   John-Top Mary-Nom self-Gen room-in studying because  
   tosyokan-de benkyoo sita.  
   library-at studied  
   Lit. 'John₁ studied at the library because Mary₁ was studying in self₁/₁'s room.'  
b. John₁-wa [Mary₁-ga zibun₁/₁-no heya-o soozisite kara]  
   John-Top Mary-Nom self-Gen room-Acc clean after  
   ie-ni kaettekita  
   home-Dat came  
   Lit. 'John₁ came home after Mary₁ cleaned self₁/₁'s room.'

(52) Binding Condition C
a. *He₁ peeked at the examination paper [near John₁].  
b. *He₁ believed the argument [that John₁ made].  
c. *She₁ will call [before Mary₁ goes out].  
d. *She₁ will call [when Mary₁ is ready to call].  
   (Culicover 1997: 82)

(53) Bound Variable Licensing
a. Every boy₁ is expected [by his₁ mother] [t to be encouraged  
   t by the teacher].  
   (Fox 1999: 159)  
b. Every senator₁ denied the claim [that he₁ had made earlier].  
c. Someone₁ serenaded the woman [before he₁ left the party].  
   (cf. Hornstein 1999: 54)  
d. Someone₁ asked the defendant [if he₁ could park near the gate].  
   (cf. Hornstein 1999: 55)
(54) *Wh*-in-situ Licensing

a. John-wa [Mary-ga paatii-de dare-to hanasiteita node]  
John-Top Mary-Nom party-at who-Dat talked because  
sonnani okotteiru no  
so angry Q  
Lit. 'John is so angry [because Mary talked with who at  
the party]?'

b. John-wa [Mary-ga nani-o yomioete kara]  
John-Top Mary-Nom what-Acc finished.reading after  
issyoni dekaketa no  
together went.out Q  
Lit. 'John went out together [after Mary finished reading  
what]?'

(51) shows that the reflexive *zibun* 'self' within the adjunct can take the matrix subject as its antecedent. In (52), the R-expression within the adjunct must be disjoint in reference from the matrix subject; the Binding Condition C effects emerge. (53) shows that the quantificational expression can license its bound pronoun within the adjunct. In (54), the *wh*-phrase in-situ within the adjunct is licensed by the matrix Q-particle *no*. Since these syntactic dependencies can access an element within an adjunct, *i.e.* a Pair-Merged SO, it follows from our Transfer as Self Pair-Merge approach that they can also access an element within a transferred SO, *i.e.* a Self Pair-Merged SO. These syntactic dependencies are phase-insensitive, not being subject to the PIC. Hence, our analysis can account for the asymmetry between phase-sensitive syntactic dependencies like Agree/Move and phase-insensitive ones with respect to the PIC.

A question arises how a Transferred SO, which is formed by Self Pair-Merge and thus interpreted as an adjunct on a "separate plane," can be interpreted as the complement of a phase head at the Interface. I argue that the Transferred Self Pair-Merged SO *\langle ZP, ZP \rangle* in (48) is converted into ZP through set theoretic conventions before reaching the
Interface, thereby properly interpreted as the complement of a phase head. Since the ordered pair \(<a, \beta>\) is defined as \(\{a, \{a, \beta\}\}\), \(\langle ZP, ZP \rangle\) is identical with \(\{ZP, \{ZP, ZP\}\}\) as shown in (55a). Since the set \(\{a, a\}\) is identical to the set \(\{a\}\) as mentioned above, \(\{ZP, \{ZP, ZP\}\}\) is identical with \(\{ZP, \{ZP\}\}\) as shown in (55b). Chomsky (2013b: 66) claims that a singleton set is identical with its member, which can be formulated as in (56) (Takita, Goto and Shibata 2014). Since \(\{ZP\}\) is identical with \(ZP, \{ZP, \{ZP\}\}\) is equal to \(\{ZP, ZP\}\) as shown in (55c). \(\{ZP, ZP\}\) is identical with \(\{ZP\}\), which is then equal to \(ZP\) by (56):

\[
\begin{align*}
(55) & \quad a. \quad \langle ZP, ZP \rangle \rightarrow \{ZP, \{ZP, ZP\}\} \\
 & \quad b. \quad \{ZP, \{ZP, ZP\}\} \rightarrow \{ZP, \{ZP\}\} \\
 & \quad c. \quad \{ZP, \{ZP\}\} \rightarrow \{ZP, ZP\} \\
 & \quad d. \quad \{ZP, ZP\} \rightarrow \{ZP\} \\
 & \quad e. \quad \{ZP\} \rightarrow ZP \\
(56) & \quad \{a\} \rightarrow a \quad \text{(Takita, Goto and Shibata 2014: 10)}
\end{align*}
\]

Hence, the Transferred Self Pair-Merged SO \(\langle ZP, ZP \rangle\) is identical with \(ZP\) and thus properly interpreted as the complement of a phase head at the Interface.

In contrast with the “cashing-out” approach to Transfer, which removes the transferred SOs from the workspace, the Self Pair-Merge approach claims that transferred SOs are still in the workspace but become invisible to phase-sensitive syntactic dependencies like Agree and Move. In this respect, our approach is similar to Uriagereka’s (1999) conservative approach to Spell-Out, which collapses the SO \(\{a, \{L, K\}\}\) into the non-SO (a “frozen” compound) \(\{a, \langle L, K\rangle\}\) through Spell-Out, and Collins and Stabler’s (2011) non-tampering condition respecting version of Cyclic Transfer, which replaces the transferred SO by \(\langle Transfer_{PF} (SO), Transfer_{LF} (SO)\rangle\) (the forms interpretable by the S-M and C-I interfaces). Our approach to Transfer, however, differs from theirs in that the former, but not the latter, can account for the phase-insensitive syntactic dependencies. This is because Uriagereka’s and
Collins and Stabler’s approaches would incorrectly predict that transferred SOs are invisible to any syntactic operations. Furthermore, the Self Pair-Merge approach to Transfer is conceptually more attractive than the “cashing-out” approach, Uriagereka’s conservative approach, and Collins and Stabler’s Cyclic Transfer approach in that the former only makes use of Merge, an indispensable and independently motivated operation. It should also be pointed out that since Self Pair-Merge is readily available under Chomsky’s (2013a; 2014) Free Merge system, the Self Pair-Merge approach to Transfer gives further support for Free Merge.

5. Conclusion

This paper has proposed Transfer as Self Pair-Merge, where the transferred SOs are in the workspace but made invisible by application of Self Pair-Merge. The proposed analysis is supported by the asymmetry between phase-sensitive syntactic dependencies like Agree/Move and phase-insensitive ones with respect to the PIC. It is also shown that the existence of Self Pair-Merge to transferred SOs gives further support for Chomsky’s (2013a; 2014) Free Merge system.

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