

Applicatives and Preposition Incorporation

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Introduction

Incorporation theory as elaborated by Mark Baker (1988a, 1988b) offers an elegant and ambitious account of a wide range of apparently relational linguistic processes within a non-relational grammatical model. Its strategy in each of several cases is to derive these processes via incorporation, or head-to-head adjunction, and to explain their syntax with independent components of the model. In this paper I will apply a partly descriptive, partly diachronic approach in criticizing one particular component of incorporation theory.

Applicative verbs are a typologically widespread class characterized by valence-increasing morphology which licenses thematically oblique arguments. Two Chicheŵa examples are¹:

- 1 a mbidzi zi-na-perek-er-a nkhandwe msampha
zebras SUBJ-PAST-hand-APPL-IND fox trap
"the zebras handed the trap to the fox" (Baker 1988a:229)
- b kalulu a-na-gul-ir-a mbidzi nsapato
hare SUBJ-PAST-buy-APPL-IND zebras shoes
"the hare bought shoes for the zebras" (ibid. 48)

In addition to their basic objects "trap" and "shoes", the verbs in 1 have applied suffixes which license applied objects "fox" and "zebras". These applied objects are thematically a recipient and a beneficiary, for which I will use the cover term "dative". Applied objects are not restricted to dative thematic roles, but can also be interpreted at least as substitutives, instruments, possessors, and causes (several of which are commonly associated with the dative cases cross-linguistically).

The formal apparatus of incorporation theory in part reflects two descriptive generalizations. The first of these concerns the syntactic status of basic and applied objects. In Chicheŵa, word order, object agreement, and passivization confirm that the basic object of a non-applicative verb is syntactically its direct object. The same tests establish that in a sentence with an applicative verb, the applied object has syntactic

¹I follow source orthographies except that I specify Chicheŵa vowel length (by orthographic gemination) only to mark contour tones, since it is predictable (see Bresnan & Kanerva 1989: 5-9), and I modernize Chicheŵa transcriptions from Watkins (1937).

direct-object status and the basic object is syntactically inert. The applied object in 1b, for instance, can be the subject of the corresponding passive, but the basic object cannot:

- 2 a **mbidzi zi-na-gul-ir-idw-a nsapato ndi kalulu**
zebras SUBJ-PAST-buy-APPL-PASS-IND shoes by hare
 "the zebras were bought shoes by the hare" (Baker 1988a:48)
- b ***nsapato zi-na-gul-ir-idw-a mbidzi ndi kalulu**
 shoes SUBJ-PAST-buy-APPL-PASS-IND **zebras** by hare
 "shoes were bought for the zebras by the hare" (ibid.)

The second descriptive generalization is that there are syntactic differences in Chicheŵa between dative and instrumental applied objects. Instrumental applicatives can be built to intransitive verbs, for instance, but datives reportedly cannot, as shown by 3a and by the impossibility of the benefactive interpretation of 3b:

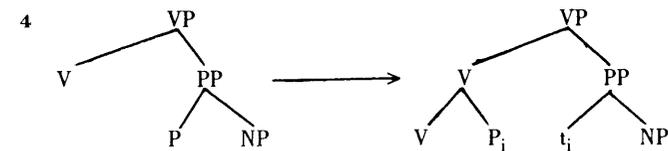
- 3 a **mbalame zi-ma-uluk-ir-a mapiko**
 birds SUBJ-HAB-fly-APPL-IND **wings**
 "birds fly with wings" (Baker 1988a:69)
- b **mkango u-ku-yend-er-a anyani**
 lion SUBJ-PROG-walk-APPL-IND **baboons**
 *"the lion is walking for the baboons" (Baker 1988a:255; 1988b:378)
 "the lion is walking in place of the baboons" (Baker 1988a:470 n. 26; 1988b:378 n. 21)
- c **Mavuto a-na-fik-ir-a njala**
 Mavuto SUBJ-PAST-arrive-APPL-IND **hunger**
 "Mavuto came out of hunger" (Baker 1988a:471 n. 31)

In fact it seems necessary to assume that the relevant contrast is not just between dative and instrumental applicatives, as Baker suggests, but between dative and all other applicative interpretations. This is because applied objects with intransitive verbs can be interpreted substitutively, as in 3b, or causally, as in 3c.

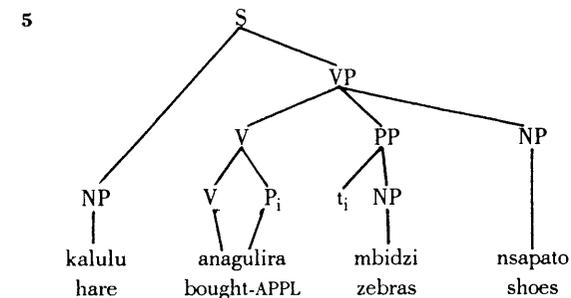
Baker refers these two Chicheŵa generalizations to a pair of proposed typological universals. The first, supported by reference to Chamorro, Chimwiini, Huichol, Swahili, Tuscarora, and Tzotzil, is that "it is normal for applied objects to supplant basic objects with respect to all these 'object properties'" (Baker 1988a:267; one class of exceptions, languages like Kinyarwanda where applied and basic objects both show direct-object properties, will play no role in my discussion). The second, supported by reference to Bahasa Indonesian and Tzotzil, is that "across a wide range of languages, the possibility of an applicative construction is directly dependent on the ability of the root verb involved to assign Case" (ibid. 258). More precisely, it is clear from Baker (1988b) and the data in 3 that this second restriction on applicative formation is assumed to exist only for dative applicatives.

Applicatives as Preposition Incorporation

Incorporation theory treats applicative syntax as follows. Dative applicatives are synchronically derived by preposition incorporation, which is the adjunction of a preposition to the head of its VP, as in 4:



The Chicheŵa applied suffix is thus a base-generated preposition obligatorily adjoined to its verb. 1b has an s-structure like 5: the applied morpheme incorporates at s-structure, and the complex verb-plus-preposition surfaces as an applicative verb.

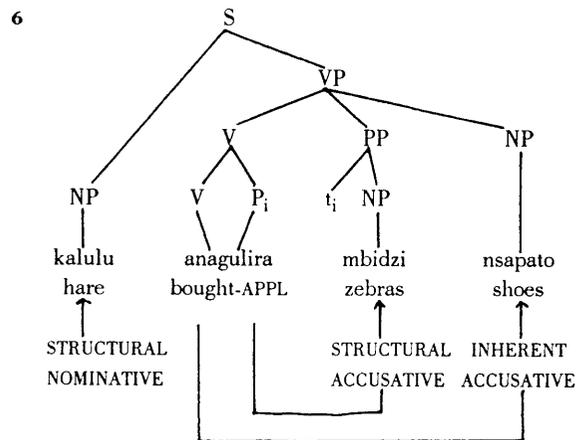


The direct-object properties of applied objects arise as a consequence of a special principle governing Case assignment in incorporation structures. Case in this framework comes in at least three varieties: inherent Case, assigned at d-structure; oblique Case, assigned at s-structure, which includes the Case assigned in most languages by prepositions to their complements; and structural Case, also assigned at s-structure, which includes both the accusative Case assigned by a verb to its direct object and in some languages the Case assigned by prepositions to their complements.

The principle in question is the Case Frame Preservation Principle: "A complex X^0 of category A in a given language can have at most the maximal Case assigning properties allowed to a morphologically simple item of category A in that language" (Baker 1988a:122). In the case of preposition incorporation, I understand this to mean that a complex verb created by preposition incorporation inherits structural Case-assigning properties from both daughters, and no oblique Case-assigning properties, but that the maximum number of NPs to which such a verb can assign structural Case is limited by a language-specific parameter setting.

While not fully elaborated, this principle seems to operate as follows in languages where complex verbs are parametrically limited to structural Case assignment to one NP. (In this theory, languages like Kinyarwanda reflect a different parameter setting.) Incorporating an oblique-Case-assigning preposition into an intransitive verb creates a complex verb which assigns no Case. Other incorporations create complex verbs which assign structural Case to one NP: incorporating an oblique-Case-assigning preposition into a transitive verb, and incorporating a structural-Case-assigning preposition into either an intransitive or a transitive verb.

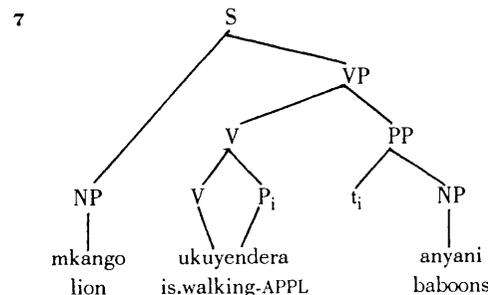
Chicheŵa is taken as typologically unremarkable in that verbs are parametrically limited to one structural Case and prepositions like the applicative suffix assign only oblique Case. A dative applicative built to a transitive verb therefore assigns exactly one structural Case. This is assigned to the applied object and is responsible for its direct-object properties. Basic objects, on the other hand, which lack direct-object status in Chicheŵa, are assigned inherent accusative Case by the verb at d-structure, as in 6, with incorporation between d- and s-structure and structural Case-assignment at s-structure.



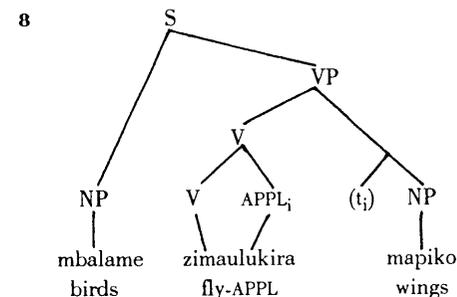
No other pattern is possible in this configuration. The applied object cannot be assigned inherent Case, which is only assigned at d-structure, where verbs are structurally unable to assign Case to prepositional complements. The applied object also cannot be assigned the oblique Case ordinarily assigned by Chicheŵa prepositions, which is only assigned at s-structure, where incorporation has occurred and verbs are unable by the Case Frame Preservation Principle to assign oblique Case.

However, in an intransitive configuration like 7, which is the structure of the unacceptable reading of 3b, the applied object cannot be assigned inherent Case because it is a prepositional complement at d-structure, it cannot be assigned oblique Case

because incorporation blocks oblique Case-assignment, and it cannot be assigned structural Case because intransitive verbs and Chicheŵa prepositions do not assign structural Case. This rules out dative applicatives with intransitive verbs.



To explain the acceptability of instrumental applicatives with intransitive verbs, Baker (1988b) proposes that unlike dative applied objects, instrumental applied objects and all instrumental phrases are NP sisters of their verb and not prepositional phrases at all; this must be also assumed for Chicheŵa substitutives and causals. On this view, morphemes like the Chicheŵa instrumental applied suffix simply realize inherent Case assigned at d-structure and occur in structures like 8, where the applied suffix trace is thematically superfluous and absent at s-structure.



Since the verb in this configuration is intransitive, the applied object cannot be assigned structural accusative Case, but since it is not a prepositional complement it can be assigned inherent accusative Case at d-structure. This correctly predicts that an instrumental applied object with a transitive verb may be assigned either inherent or structural accusative Case, with the other Case assigned to the basic object, and as a result that applied and basic objects of instrumental applicatives both display some direct-object properties in Chicheŵa.

Applicatives and Typology

Apparent counter-evidence to the view that applicatives are derived by preposition incorporation may reflect either parametric variation in verbal Case-assignment capacity or lexical Case-assigning differences among affixes or prepositions. Nevertheless we may examine some purported universals the account explains. The first is that dative applicatives are rarely built to intransitives. This is supported by the well-known work of Aissen on Tzotzil and Chung on Bahasa Indonesian: applicative verbs in these languages, with essentially dative interpretations, cannot be built to intransitives. Still, its empirical range is unclear.

Baker (1988a, 1988b) asserts that applied objects of lexically intransitive verb roots are not productively interpreted as benefactives in one Chicheŵa idiolect, although they are interpretable as substitutives, and that 9a therefore cannot be interpreted benefactively. However, an apparently benefactive applied object appears with the same intransitive verb in 9b and its passive 9c, and in any case other speakers accept some such sentences, as indicated in 9d-e.

- 9 a mtolankhani a-ku-thamang-ir-a **chiphadzuwa**
journalist SUBJ-PROC-run-APPL-IND **beautiful.woman**
*"the journalist is running for the beautiful woman" (Baker 1988a:255)
"the journalist is pursuing the beautiful woman" (ibid. 70)
- b w-a-thamang-ir-á **mfúumu** mu-mpikisano
2SGSUBJ-PERF-run-APPL-IND **chief** LOC-race
"you have run for the chief in the race" (Bresnan & Kanerva 1989:18)
- c **mfúumu** y-a-thamang-ir-idw-á mú-mpikisano
chief SUBJ-PERF-run-APPL-PASS-IND LOC-race
"the chief has been run for in the race" (ibid. 19)
- d kw-a-n-d-ér-a pano pa thengo
SUBJ-PERF-1SGOBJ-darken-APPL-IND here LOC forest
"it got dark on me here in the forest" (Watkins 1937:76)
- e u-dá-dzí-kwat-ír-a
2SGSUBJ-PAST-REFL-marry-APPL-IND
"you have married for yourself" (ibid. 81)

Moreover, as recently argued by Alsina & Mchombo (1989 §4.2.2), Baker's attempt to distinguish substitutive from (other) benefactive interpretations does not account for differences between the syntax of substitutives and other more clearly non-benefactive interpretations. For instance, the substitutive applicative in 10a triggers object agreement and can, as in 10b, be passivized, whereas the causal applicative in 10c can do neither, as indicated by 10d-e:

- 10 a Yéèsu a-ná-wá-f-er-a anthu
Jesus SUBJ-PAST-OBJ-die-APPL-IND **people**
"Jesus died for the people" (Alsina & Mchombo 1989 ex. 38a)
- b anthu a-ná-f-ér-èédw-a (ndí Yéèsu)
people SUBJ-PAST-die-APPL-PASS-IND (by Jesus)
"the people were died for (by Jesus)" (ibid. ex. 38b)
- c chitsîru chi-ku-lír-ír-a **màántha**
fool SUBJ-PRES-cry-APPL-IND **fear**
"the fool is crying for fear" (ibid. ex. 37a)
- d *chitsîru chi-ku-wá-lír-ír-a **màántha**
fool SUBJ-PRES-OBJ-cry-APPL-IND **fear** (ibid. ex. 37b)
- e ***màántha** a-ku-lír-ír-ííd-w-a (ndí chitsîru)
fear SUBJ-PRES-cry-APPL-PASS-IND by fool (ibid. ex. 37c)

Comparative evidence indicates that applied objects of lexical intransitives can be interpreted benefactively elsewhere in Bantu, as in 11a-b. The verb root of 11b is cognate to that of 10a-b, and Port (1981:79) states specifically that 11b could "also be interpreted in the appropriate context as 'his father died for him', where the son is now a beneficiary".

- 11 a umugóre a-rá-kor-er-a umugabo (Kinyarwanda)
woman SUBJ-PRES-work-APPL-IND **man**
"the woman is working for the man" (Kimenyi 1980:32)
- b a-me-f-i-w-a na babake (Swahili)
SUBJ-TNS-die-APPL-PASS-IND by his.father
"he has been died on by his father" (Port 1981:79)

Lexically transitive verbs with null indefinite or generic objects are an additional surface intransitive verb type in Bantu, and it is further asserted that benefactive applicatives are possible "based on the transitive uses of these verbs but not on the intransitive ones" (Baker 1988b:378 and Alsina & Mchombo 1989 §4.2.1, followed by Bresnan & Moshi 1990:152). The contrast is illustrated in 12a, where *chimangirizo* "essay" cannot be omitted. This empirical claim too seems to be contradicted, for Chicheŵa by 12b-c and for Chimwiini by 12d. (The theory of Bresnan & Moshi 1990 suggests that Chimwiini should disallow benefactive applicatives with null-object transitives.)

- 12 a mlenje a-ku-lémb-ér-a **mfúmú** *(chimangirizo)
hunter SUBJ-PRES-write-APPL-IND **chief** **essay**
"the hunter is writing *(an essay) for the chief" (Alsina & Mchombo 1989 ex. 34a)

- b** mu-**ndi**-pélek-él-é
2PLSUBJ-1SGOBJ-send-APPL-IND
"that you may send (a thing) on my behalf" (Nkomba 1953:108)
- c** a-ká-**ndí**-tsekul-ir-a
SUBJ-go-1SGOBJ-open-APPL-IND
"(I will go into the brush over there and knock.) They will open up for me"
(Bresnan & Kanerva 1989:43)
- d** ha-wa-**ta-m**-xada²-iĭ-a (Chimwiini)
NEG-SUBJ-TNS-OBJ-cheat-APPL-IND
"they will not cheat (someone) for/on him" (Abasheikh 1976:3)

It is possible that the acceptability alternations illustrated in 9-12 are conditioned not by transitivity per se but by features of predicate interpretation such as aspect. In any case, dative applicatives in many languages are productively built to intransitive verbs. Three Iroquoian examples with intransitive morphologically underived roots are 13a-c. According to the discussion of Tepehua by Watters (1989), "with the exception of Mayan, most other Meso-American languages which have applicatives apparently allow applied affixes to occur on intransitive stems", and the same is true of several cases discussed by Craig and Hale (1988). Three final random examples are 13d-f, where 13f is specifically glossed "for her pleasure or in her place".

- 13 a** sako-lihuny-ę:ni (Mohawk)
3SGMASC SUBJ/3SGFEM OBJ-teach-APPL
"he taught her" (Bonvillain 1973:204)
- b** he:wa:hse:h (Seneca)
1SGSUBJ/3SGMASC OBJ-cover.with.a.blanket-APPL-ASP
"I've covered him with a blanket" (Chafe 1967:25)
- c** wa²-na²-ǝíhę-²θ (Tuscarora)
AOR-3SGFEM SUBJ/3SGFEM OBJ-whisper-APPL
"one whispered to another" (Rudes & Crouse 1987:2.467)
- d** ni-mo-wecki-liya (Huasteca Nahuatl)
1SG-REFL-smile-APPL
"I laughed at myself" (R. & P. Beller 1979:305)
- e** ŋanu-bak-waŋ²-du-ŋi (Ngandi)
1SGSUBJ/3SGMASC OBJ-APPL-look.around-AUGM-PCON
"I was looking around for him" (Heath 1978:81)

- f** hu kanta-yi si **Maria** (Chamorro)
1SGSUBJ sing-APPL FOC **Maria**
"I sang for Maria" (Topping 1973:251)

Now on the assumption that benefactive applied objects are d-structure prepositional complements and so cannot be assigned verbal inherent Case, at least the benefactive applied affixes above must assign structural rather than oblique Case, since only structural Case can be inherited under incorporation. This is confirmed by the usual independent tests: these applied objects are passive subjects in 9c, 10b, and 11b, and trigger direct-object agreement in 9d-e, 10a, 12b-d, and 13a-e.

A second typological prediction is that while applied objects with intransitive verbs should be freely interpretable as non-datives, in particular instrumentals, they should not be assigned structural accusative Case. The reason is that this thematic class of applied objects has no possible source of such a Case with intransitive verbs: the verbs themselves assign no Case, and applied affixes which license instrumentals just realize inherent Case and are not in fact prepositions or Case-assigners themselves. This prediction is confirmed neither cross-linguistically nor, as also observed by Alsina & Mchombo (1989 §4.22), in Chicheŵa itself. A specifically instrumental applied object with object agreement appears in the Chicheŵa sentence in 14a, and an instrumental passive subject appears in 14b. Similar facts in Tepehua are discussed by Watters (1989), and Mark Hale has called my attention to instrumental applied objects assigned structural accusative Case in several Nuclear Micronesian languages, as in 14c. The object agreement in 14a and the passive suffixes in 14b-c entail the presence of structural accusative Case-assigners, which, since the verb roots are intransitive, can only be the instrumental applied suffixes *-er-* (14a-b) and *-kihn-* (14c).

- 14 a** anyàáni a-na-í-yénd-ér-a **ndodo** (Chicheŵa)
baboons SUBJ-PAST-OBJ-walk-APPL-IND **stick**
"the baboons are walking with the stick" (Alsina & Mchombo 1989 ex. 39b)
- b** **ndodo** i-ku-yénd-ér-edw-á pa-msewu (Chicheŵa)
stick SUBJ-PROG-walk-APPL-PASS-IND LOC-road
"a stick is being walked with in the road" (Bresnan & Kanerva 1989:19)
- c** **sroacnu ah** otwot-kihn-yuhk-lac (Kosraean)
coconut.leaves DET weave-APPL-PASS-DIR
"the coconut leaves were used up in weaving" (Lee 1975:192)

Even a large set of isolated data does not disconfirm a theoretical analysis, of course, and the accomplishments of incorporation theory should not be disparaged. Still, the theory seems to have some disadvantages as it relates to applicative verbs. First, it posits significant structural differences within single languages among various morphologically identical applicative constructions, in particular among interpretations traditionally and

cross-linguistically associated with datives. Second, it posits a somewhat obscure Case-assigning difference among prepositional affixes in languages where all clear prepositions assign a single type of Case. Third, it predicts an apparently spurious universal contrast between dative and instrumental applicatives. Where the contrast appears, the theory treats applied and basic objects as NP sisters of the applicative verb, and in many instances must allow structural Case-marking of either. This may prove equivalent to the position that applicatives are derived (morpho-)lexically.

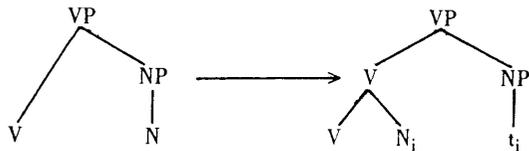
Typology is a notoriously dangerous argument for specific formal proposals, since typological generalizations very often have diachronic explanations which should not be included in a formal synchronic grammar. Typological evidence, while always relevant, can therefore be depended on only when diachronic explanations have been excluded. In this case, since applied morphemes often originate diachronically as serial verbs, and benefactive morphemes in particular as verbs meaning "give", any slight tendency toward restricting benefactives to transitives could reflect the fact that verbs meaning "give" would originally have co-occurred with transitive predicates. A formal account of such systems must obviously explain how a transitivity restriction is learnable, but would not be responsible for explaining the typological facts as well.

Diachrony I: Applicatives via Clause Union

In my view these conceptual and empirical inadequacies are related to an inherent peculiarity of the proposal that applicatives are synchronically derived by preposition incorporation. This peculiarity is revealed by a superficial comparison with two other incorporation-theory claims, namely that noun incorporation is synchronically derived by syntactic noun incorporation, and that causatives are synchronically derived by syntactic verb incorporation. Noun-incorporation structures usually contain a recognizable noun, and causatives in a host of languages contain recognizable verbs meaning "make" or the like. Applicative verb formations, though, do not often contain recognizable prepositions.

There is a simple reason for the difference. As far as I know, synchronic noun incorporation processes are always the result of diachronic noun incorporation, and synchronic causatives are the result of diachronic verb incorporation, as in 15 and 16.

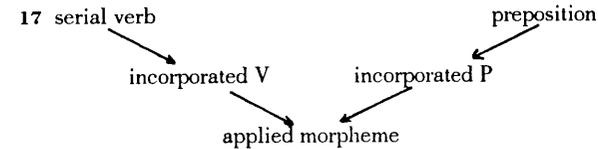
15 Noun Incorporation



16 Causatives



By contrast, it is not the general case that applicative verbs arise via diachronic preposition incorporation, though some certainly do. Applicative morphology evolves most commonly from the two sources in 17: preposition incorporation and verb serialization. The ultimate reanalysis of these originally free lexical items as obligatorily bound applicative morphemes recalls similar historical processes like the capture of unstressed pronouns and their ultimate transformation into agreement marking, a parallel which might a priori recommend a lexical or morpholexical account of applicative morphology (such as that of Alsina & Mchombo 1989 and Bresnan & Moshi 1990).



In any case, while synchronic description emphatically need not recapitulate diachronic development, the incorporation account implicitly makes two specific diachronic predictions, which as historical claims can be tested in favorable cases. The first prediction follows from the assumption that dative applicatives are in general derived synchronically by preposition incorporation. This would entail that language learners are forced by the interpretation of these applicatives to analyze them as verbs with incorporated prepositions. For the particular case of applicative morphology which diachronically continues verb serialization, this in turn entails that reanalysis of a serial verb as an incorporated lexical item is actually contingent on a categorial reanalysis of that verb as a preposition. In other words, if applicatives must be preposition incorporation, then 17 is wrong, the necessary intermediate stage between serial verb and applied morpheme is preposition incorporation not verb incorporation, and the diachronic reanalysis of string-adjacent verbs as incorporation structures sketched in 18 requires that X be a preposition.

18 DIACHRONIC STAGE ONE: Main-V [Serial-V Thematically-Dative-NP]

DIACHRONIC STAGE TWO: [Main-V X_i] [t_i Thematically-Dative-NP]

In fact 17 is correct and the prediction of incorporation theory false, since the development in question is just a special case of what has been called "tight serialization".

An example of this is 19, in which Goddard (1988) states that "there is no possibility of separating [the two verbs] with a pause or any intervening material". Together with the case-marking, word order, and tense scope, this suggests an analysis on which the two verbs form one s-structure complex verb derived by verb incorporation. Similar facts occur in many languages.

- 19 paluru nyiinyii **yanku-la ura-nu** (Yankunytjatjara)
 DEF.ERG zebra.finch.ACC **go-SER get-PAST**
 "she went and got zebra finch (droppings)" (Goddard 1988:181)

A special case of this development is 18, and an example is provided by the development of Proto-Oceanic **pa(n̄)i* "give", discussed at length by Lichtenberk (1985). This was originally a verb, but its Gedaged descendent *pan* occurs productively in two contexts: it is a free verb in 20a, but functions like an applied morpheme in 20b-c.

- 20 a tamol ta tabiz **pan-ag-oi**
 man some bowl **give-1SCOBJ-IRREAL**
 "a man will give me a bowl" (Lichtenberk 1985:47)
- b ab sas-e **pan-ag-oi**
 house build-3SCOBJ **give-1SCOBJ-IRREAL**
 "build a house for me" (ibid. 48)
- c ya-ina-g uzat u-nau-g **pan-ag**
 1SC-POSS-1SCPOSS work 2SCSUBJ-do-MED **give-1SCOBJ**
 "you have worked for me" (ibid. 49)

The development from free verb to bound status did not depend on reanalysis as a preposition. In all contexts, as Lichtenberk shows, this word must be analyzed synchronically as a verb: it displays exclusively verbal morphophonemic alternations, and the optional modality markers illustrated in 20a-b can follow only it and not the head verb. Moreover, this verb cannot be analyzed as serialized in 20b-c, because non-third-person subject agreement is obligatory on all non-imperative serial verbs in Gedaged, as in 21, but never appears on *pan*, as in 20c.

- 21 pain di-matal **di-du**
 woman 3PLSUBJ-take.seat **3PLSUBJ-go.down**
 "the women sit down" (Lichtenberk 1985:50)

This suggests that 20b-c each contain syntactically complex verbs consisting of two phonologically discrete entities, a head verb and an adjoined verb "give" with dative function. The diachronic development of an incorporation structure with dative applicative interpretation is therefore not contingent on any reanalysis of a verb as a preposition, and it is inappropriate to assume in general that applicatives are

synchronically derived by preposition incorporation. Some may be, but the argument needs to be made explicitly for each case and contrasted with arguments for other analyses like verb incorporation and (morpho-)lexical derivation.

Diachrony II: Applicatives via Preposition Incorporation

In attributing a range of syntactic effects to a particular linguistic process, it is desirable to determine whether clear cases of that process have the same effects, and the second prediction made by incorporation theory is therefore that clear cases of diachronic preposition incorporation will manifest the syntax associated with applicative morphology. As it turns out, there are fundamental differences in the syntax of applicatives and preposition incorporation. The best-known and longest-studied systems of preposition incorporation occur in Indo-European, and I take my data from Homeric Greek. (The analysis was presented in more detail as Garrett 1988, but there are other similar treatments of these facts, e.g. Hessinger 1978 and Horrocks 1981.)

Prepositions in Homeric Greek have several straightforward functions: they can head prepositional phrases with overt or null complements, and they can be interpreted as directional or aspect markers. In all these functions they may appear separated from their verbs, as in 22, or phonologically incorporated into them, as in 23:

- 22 a hó t ... mákhesthon [pp **pídakos amph olígēs**]
 PRODUALNOM and fight.PRES3DUAL [pp **spring.GEN around small.GEN**]
 "and the two fight for a small spring" (Iliad 16.824-5)
- b theíos ... êlthen óneiros [pp **ambrosíēn dià núkta**]
 divine.NOM come.AOR3SG dream.NOM [pp **ambrosial.ACC through night.ACC**]
 "a divine dream came through the ambrosial night" (Iliad 2.56-57)
- 23 a [pp **t; nékuos**] de dē **amphi**;-mákhontai
 [pp **t; body.GEN**] PTCL PTCL **around**;-fight.PRES3PL
 "and they fight for his body" (Iliad 18.20)
- b **di**;-erkhómenos [pp **t; méga ástu**]
through;-come.PTCPPLNOMSGMASC [pp **t; great.ACC city.ACC**]
 "as he was coming through the great city" (Iliad 6.392)

As heads of PPs with overt complements, these prepositions are base-generated in their PPs, case-mark their complements, and can be extracted only by topicalization or incorporation. Preposition incorporation is possible in this language regardless of host transitivity, as shown by 23-24.

- 24 Ἑἕλιος [pp t_i méson ouranòn] **amphi_i-bebêkei**
 Helios.NOM [pp t_i middle.ACC heaven.ACC] **around_i-walk.PF3SG**
 "Helios stood over the middle heaven" (Iliad 8.68)

Preposition incorporation here is unlike applicative formation in having no effect on grammatical relations. The logical objects of prepositions retain their oblique morphological case and the logical objects of verbs retain their accusative case-marking, as illustrated in 25a-b. In addition, nominative case and subject agreement are associated with logical verbal objects but not prepositional objects in passive and middle constructions, as in 25c-d.

- 25 a [pp t_i stómatos] d eks_i-éptusen hálmēn
 [pp t_i mouth.GEN] PTCL out_i-spit.AOR3SG seawater.ACC
 "he spat sea-water from his mouth" (Odyssey 5.322)
- b teúkhe ap_i-ainúmenon [pp t_i Apisáonos]
 armor.ACC from_i-take.PTCP.LSG.ACC.MASC [pp t_i Apisaon.GEN]
 "as he was taking the armor off Apisaon" (Iliad 11.582)
- c pân d hup_i-ethermánthē ksíphos [pp t_i haímati]
 all.NOM PTCL under_i-heat.AORPASS3SG sword.NOM [pp t_i blood.DAT]
 "the whole sword was heated under the blood" (Iliad 16.333)
- d theíē dé [pp t_i min] amph_i-ékhut omphê
 divine.NOM PTCL [pp t_i PROACC] around_i-pour.AORPASS3SG voice.NOM
 "a divine voice was poured around him" (Iliad 2.41)

Incorporation theory could assimilate this data via the parametric variation assumed to exist in prepositional Case-assigning features, but I am not sure it should. The syntactic inertness of Homeric Greek prepositional objects seems typical of clear cases of preposition incorporation: one mentioned in passing by Nichols (1986:84) is illustrated in 26, for instance, where case-marking indicates that preposition incorporation has no effect on grammatical relations; similar Pima facts are discussed by Munro (1989).

- 26 a čaj-na ču šiekar tasa (Chechen)
 tea-DAT in sugar.ABS sprinkle.IMPV
 "put some sugar in your tea" (Nichols 1986:84)
- b čaj-na šiekar ču-tasa
 tea-DAT sugar.ABS in-sprinkle.IMPV (ibid.)
- 27 DIACHRONIC STAGE ONE: Verb [pp Preposition NP] NP
 DIACHRONIC STAGE TWO: [Verb Preposition_i] [pp t_i NP] NP

This is expected from the diachronic point of view. It would in fact only be possible for the creation of a system of preposition incorporation, as in 27, to affect grammatical relations in the special case where language learners cannot by any means — such as head marking, dependent marking, or word order — determine what grammatical relations verbal and prepositional objects bear. I suggest in conclusion that if actual preposition incorporation does not in general affect grammatical relations or have transitivity restrictions, the problem posed by applicative morphosyntax for a non-relational model should not be solved by reference to this quite distinct process.

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