Morphological alignment in Ta'oih

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1 Introduction

The aim of this paper is to describe and determine the morphological alignment patterns for case and agreement (or: head- and dependent marking, cf. Nichols 1986) in Ta'oih, an Austroasiatic language of the Katuic branch (Sidwell 2005; 2015). Ta'oih is spoken in the border region of Laos and Central Vietnam, with the majority of speakers living in Laos. The present study is based on work with a native speaker of Upper Ta'oih from the Vietnamese Thua Thien Hue province.[1] The number of Ta'oih speakers in Vietnam varies from 10,000 to 20,000 in the literature (see e.g. Sidwell 2005; Schmutz 2013; Eberhard et al. 2019). Ta'oih is an extremely understudied language, also compared to other Katuic languages like e.g. Pacoh (see Alves 2015 on the relation between Pacoh and Ta'oih that are sometimes grouped as one languages, but are apparently not mutually intelligible). There are only very few sources on the Ta'oih language and these are very short (less than 8 pages). Next to a few small dictionnaries (see Schmutz 2013 for a list and information on the socio-cultural background of the Ta'oih people), there is a very brief description of some phonetic aspects in Watson (1969); van der Haak (1993), two short papers concerned (mainly) with pronouns (Solntseva 1991; 1996) and very recent work on some aspects of the syntax (in particular existential constructions) in Tran (2019). The work by Solntseva is based on a joint Soviet-Vietnamese linguistic expedition in the 1980s. While Solntseva (1996) provides a table with the forms of personal pronouns with some observations on case marking, there are no example sentences in these papers that exemplify the usage of the pronominal forms; very few sentences are provided in Solntseva (1991) interspersed with the text and without glosses. But they are not sufficient to retrieve the argument encoding pattern from the data. In the present paper, we report the results of our study of morphological alignment of transitive and ditransitive verbs for pronouns but also for other nominal argument types (sections 2 and 3). Furthermore, we investigate whether the morphological marking of core arguments of the verb are influenced by referential scales (section 4) and how other argument types (benefactives, non-agentive subjects, possessors) are encoded compared to the core verbal arguments (section 5). Finally, we compare the findings to the pronominal paradigm provided in Solntseva (1996) and highlight some interesting differences (Section 6).

[1] The native speaker informant is Dr. Ke Suu. The research was conducted in April 2019 at the University of Potsdam, Germany, when she visited the department.

2 Transitive alignment

Morphological alignment describes the grouping of argument types with respect to the morphological marking that indicates their grammatical function in a sentence. The question is which of the basic argument types morphologically behave alike and which behave differently. We will first investigate the alignment of the two core arguments (or: macro-roles, see Foley and Van Valin 1984) of a transitive verb, viz. A and P, compared to the alignment of the sole argument of an intransitive verb, abbreviated as S (Comrie 1978; 1989; Bickel and Nichols 2009; Bickel 2012; Dixon (1994) uses O rather than P for the same function). Six basic alignment types have been identified in the languages of the world: ergative, accusative, neutral, tripartite, active/inactive, and A=P. We will study the alignment of personal pronouns and other nominal argument types in the (in)transitive frame separately.

2.1 Alignment of personal pronouns

The data set in (1) exemplifies the entire set of personal pronouns in Ta'oih in S-function, here in sentences with the unergative verb *karlúh* 'to run'. The canonical word order (in all-new sentences) is subject–verb. The language makes a morphological distinction between three persons (1st, 2nd, 3rd, no inclusive/exclusive distinction detected) and three numbers (singular, dual, plural). Natural gender is encoded only in 3rd person singular referents: The general 3rd person singular pronoun for animate and inanimate referents is *o*; however, human referents are preferably expressed by using a noun phrase that literally means 'man/boy' or 'woman/girl' instead of the pronoun *o* (though *o* would be suitable in this context as well). Following van der Haak (1993) the sequence *ng* is used in orthography to represent the velar nasal /ŋ/, and the sequence *nh* stands for an aspirated nasal; ' represents the glottal stop /ʔ/.

(1) Unergative verbs:[2]

a. Ku karlúh
1SG run
"I run."

b. Măi karlúh
2SG run
"You(sg) run"

c. koonh ngku'k karlúh
man that run
"He/the man runs."

d. kăn ngku'k karlúh
woman that run
"She/the woman runs."

e. o karlúh
3SG run
"He/she/it runs."

f. Nhăng karlúh
1DU run
"We(du) run."

g. He karlúh
1PL run
"We(pl) run."

h. inho'a karlúh
2DU run
"You(du) run."

i. Ipe karlúh
2PL run
"You(pl) run."

j. anho'a karlúh
3DU run
"They(du) run."

k. Ape karlúh
3PL run
"They(pl) run."

[2]The following glosses are used in this paper: DAT = dative, CAUS = causative, DU = dual, FUT = future, GEN = genitive, IPFV = imperfective, L = linker, MOD = modifier, PFV = perfective, PL = plural, REFL = reflexive, SG = singular.

The forms of the personal pronouns are the same when they serve as the sole argument of a prototypically unaccusative verb like *dăm* 'to fall', see (3). Hence, there is no morphological (case/flagging) distinction between more A- vs. more P-like personal pronoun sole arguments of an intransitive verb in Ta'oih, unlike in languages with active–inactive alignment.

(2) Unaccusative verb:

a. Ku dăm
1SG fall
"I fall."

b. Măi dăm
2SG fall
"You(sg) fall."

c. Koonh ngku'k dăm
man that fall
"He/the man falls."

d. Kăn ngku'k dăm
woman that fall
"She/the woman falls."

e. O dăm
3SG fall
"He/she/it falls."

f. Nhăng dăm
1DU fall
"We(du) fall."

g. He dăm
1PL fall
"We(pl) fall."

h. inho'a dăm
2DU fall
"You(du) fall."

i. Ipe dăm
2PL fall
"You(pl) fall."

j. anho'a dăm
3DU fall
"They(du) fall."

k. Ape dăm
3PL fall
"They(pl) fall."

These first two data sets also show that there is no agreement (or indexing) morphology on the verb; its form does not co-vary with the phi-features of the subject.[3] Finally, a note on word order: The canonical order is S-V in sentences with an intransitive verb, as illustrated in the examples above. With unaccusatives, however, the reverse order V-S is possible, too. See Tran (2019) for some discussion of pragmatic effects of the SV/VS-alternation with unaccusatives.

We will now compare the form of personal pronouns used in S-function to their form when used as agent (A) and patient (P) argument of a transitive verb. This usage is illustrated in (3) for some of the logically possible combinations with the verb *akăh* 'to see'. The examples provide pairs in which the pronouns in A-function vs. P-function are exchanged, e.g. 'I see you(sg).' vs. 'You(sg) see me'. These pair show that there is no difference in the form of the pronouns in A- vs. P-function. What is crucial for interpretation, however, is the position of the argument relative to the verb: the preverbal argument is the more agent-like argument, while the postverbal one is the more patient-like one. Thus, Ta'oih exhibits strict SVO word order in information-structurally neutral declarative sentences. Moreover, comparing the pronouns in (1)/(2) with the pronouns in (3), we also see no morphological difference in the form of the pronouns, i.e. there is no distinction between intransitive and transitive subjects. Finally, as with intransitive verbs, the verb always occurs in the same form, viz., transitive verbs also does not exhibit agreement, neither with the A- nor with the P-argument.

[3]See Haspelmath (to appear) for a discussion of the use of the terms case/agreement vs. flagging/indexing. I use case and agreement in what follows, but nothing crucial hinges on this for our purposes.

(3) Transitive verb:

a. ku akăh koonh ngku'k / o
1SG see man that / 3SG
"I see him/it."

b. koonh ngku'k / o akăh ku
man that / 3SG see 1SG
"He/It sees me."

c. măi akăh koonh ngku'k / o
2SG see man that / 3SG
"You(sg) see him/it."

d. koonh ngku'k / O akăh măi
man that / 3SG see 2SG
"He / It sees you(sg)."

e. ku akăh măi
1SG see 2SG
"I see you(sg)."

f. măi akăh ku
2SG see 1SG
"You(sg) see me."

g. he akăh ape
1PL see 3PL
"We(pl) see them(pl)."

h. ape akăh he
3PL see 1PL
"They(pl) see us(pl)."

i. ipe akăh ape
2PL see 3PL
"You(pl) see them(pl)."

j. ape akăh ipe
3PL see 2PL
"They(pl) see you(pl)."

k. he akăh ipe
1PL see 2PL
"We(pl) see you(pl)."

l. ipe akăh he
2PL see 1PL
"You(pl) see us(pl)."

m. he akăh koonh ngku'k / o
1PL see man that / it
"We(pl) see him/it."

n. koonh ngku'k / o akăh he
man that / it see 1PL
"He/it sees us.(pl)"

o. ku akăh ipe
1SG see 2PL
"I see you(pl)."

p. ipe akăh ku
2PL see 1SG
"You(pl) see me."

For the sake of completeness, (4) illustrates some examples in which the pronouns in subject and object function of a transitive verb have the same phi-features (3rd person) and are interpreted as disjoint in reference.[4]

(4) Transitive verb, disjoint reference of phi-identical subject and object pronouns:

a. koonh ngku'k akăh koonh ngku'k.
man that see man that
"He / The man sees him / the man."

b. o akăh o.
3SG see 3SG
"He/she/it sees he/she/it."

c. ape akăh ape
3PL see 3PL
"They see them."

[4]When A and P are to be interpreted as co-referent, a reflexive element occurs in P-function, see the two examples in (i). There seem to be several reflexive elements in Ta'oih. We leave it to future research to determine which can be used in which context. We only illustrate the one that is built from the word *chính* followed by the personal pronoun that is identical in form to the co-referent A-argument:

(i) a. O akăh chính o (kât talléng)
3SG see REFL 3SG (in mirror)
"He/she/it sees himself/herself/itself in the mirror."

b. Ape akăh chính ape (kât talléng)
3PL see REFL 3PL (in mirror)
"They(pl) see himself/herself/itself in the mirror."

We can thus conclude that pronominal arguments exhibit neutral alignment: pronouns in S, A, and P function are encoded alike (= basic form of the pronouns), and neither the transitive nor intransitive verb agrees with any of their arguments.

2.2 Alignment of other nominal expressions

While Solntseva (1996) provides the form of personal pronouns in Ta'oih, she does not consider other nominal types. The purpose of this subsection is to find out whether non-pronominal arguments exhibit the same morphological behavior as pronouns in S-, A-, and P-function as their pronominal counterparts. In fact, this is what we find, see (5) (intransitive verb) and (6) (transitive verb) for some representative examples with (animate and inanimate) common nouns (*koónh tăk are* 'farmer', *tôm ndong*, tree), kinhsip terms (*akoonh* 'father') and proper names (*Kăn Lúq*, *A-Nun*) as arguments.

(5) Intransitive verb:

a. koónh tăk are karlúh
farmer run
"The farmer runs."

b. koónh tăk are dăm
farmer fall
"The farmer falls."

c. tôm ndong dăm
tree fall
"The tree falls."

d. akoonh karlúh
father run
"Father runs."

e. akoonh dăm
father fall
"Father falls."

f. Kăn Lúq karlúh
Kăn Lúq run
"Kăn Lúq runs."

g. A-Nun dăm
A-Nun fall
"A-Nun falls."

(6) Transitive verb:[5]

a. koónh tăk are akăh ku
farmer see 1SG
"The farmer sees me."

b. ku akăh koónh tăk are
1SG see farmer
"I see the farmer."

c. he akăh akoonh
1PL see father
"We(pl) see father."

d. akoonh akăh he
father see 1PL
"Father sees us."

e. O pa-dăm tôm ndong
3SG CAUS-fall tree
"He fell a tree."

f. ku akăh akoonh
1SG see father
"I see father."

g. akoonh akăh ku
father see 1SG
"Father sees me."

h. Kăn Lúq akăh ku
Kăn Lúq see 1SG
"Kăn Lúq sees me."

i. ku akăh Kăn Lúq
1SG see Kăn Lúq
"I see Kăn Lúq."

j. ape akăh A-Nun
3PL see A-Nun
"They(pl) see A-Nun."

k. A-Nun akăh ape
A-Nun see 3PL
"A-Nun sees them(pl)."

[5]The causative prefix *pa-* in (6-e) is used to form transitive out of intransitive verbs: *X dăm* 'X falls' (intransitive) vs. *X pa-dăm Y* 'X fells Y' (transitive).

We see that non-pronominal arguments occur in an invariant morphological form in S-, A- and P-function, just like the personal pronouns, i.e., there is no case marking on non-pronominal nominal arguments either in the (in)transitive frame. And like pronouns, nominal arguments do not trigger agreement on the verb, the form of the verb is invariable. As a result we can say that Ta'oih exhibits neutral alignment for all types of (pro)nominal arguments with respect to case and agreement (there is no case marking and agreement marking at all with (in)transitives).

3 Ditransitive alignment

In this section, we compare the transitive alignment pattern to ditransitive alignment. In the typological literature (Dryer 1986; 2007; Croft 1990; Haspelmath 2007*b*; Malchukov et al. 2010) this means that we will primarily compare the encoding of the P-argument of a transitive verb to the encoding of the theme (T) argument as well as the recipient/goal (R) argument of a ditransitive verb. Ditransitive alignment patterns in the languages of the world are the indirective pattern (P=T≠R), the secundative pattern (P=R≠T), and neutral alignment (P=T=R). In addition, we will also investigate whether ditransitive agents differ in their morphological encoding from their (in)transitive counterparts.

3.1 Encoding of the recipient argument

We will first consider the encoding of the recipient argument R of a ditransitive verb in Ta'oih. To determine its morphological form, we used the ditransitive sentence frame in (7) with an empty slot (underlined) for the recipient. As this example shows, the canonical word order in sentences with a ditransitive verb of transfer like *dóng* 'give' is subject – verb – direct object – indirect object.[6]

(7) Loar dóng urăq __
Loar give book R
"Loar gives the book to R."

(8) lists the various forms of pronominal recipient arguments, varied for person, number, and natural gender as they occur in the underlined position in (7), viz., as the R-arguments in the ditransitive frame. (9) adds the forms of other nominal expressions (proper names, kinship terms, common nouns) in the same position. Recall that the forms that correspond to 'the man' / 'the woman' are also used to refer to animate 3rd person referents, whereas the pure pronominal form *o* can be used for animate s well as inanimate referents, just as in transitive clauses.

(8) Form of pronouns in R-function:

1sg	1du	1pl	2sg	2du	2pl	3sg	3du	3pl
a-ku	a-nhăng	a-he	a-măi	a-o-inho'a	a-o-ipe	a-o	a-o-anho'a	a-o-ape

[6] A reordering of the R- and the T- argument is sometimes possible; we leave ti to future work to determine what conditions this word order variation. So far we have not detected any encoding differences between the objects as a function of their linear order, however.

(9) Form of other nominal expressions in R-function:

proper name	kinship terms		common nouns	
a-o-Kuyu'k	a-o-akoonh	'father'	a-o-koónh tăk are	'farmer'
a-o-Kăn Lúq			a-o-koonh ngku'k	'man'
			a-o-kăn ngku'k	'woman'
			a-o-ndil	'girl'

(10) and (11) provide two concrete examples sentences with a 1pl and a proper name recipient:

(10) Loar dóng urăq a-he
Loar give book DAT-1PL
"Loar gives the book to us(pl)."

(11) Loar dóng urăq a-o-akoonh
Loar give book DAT-L-father
"Loar gives the book to father."

Looking at the forms in the table in (10), we can see that the morphological form of the (pro)nouns used in R-function corresponds to the form used in S-, A- and O-function plus a preceding *a*-marker. Given its function to mark recipients of ditransitive verbs, we will gloss the *a*-morpheme as a dative marker DAT. In some cases an additional morpheme, viz., *-o-* must occur in between the dative marker *a-* and the pronoun. This is the case for non-first person non-singular pronouns as well as for all nouns.[7]

It is not clear what exactly triggers the insertion of *-o-*: We cannot identify a phonological condition in the data we have that unifies all the contexts in which this element surfaces. In pronouns, *-o-* seems to occur whenever the pronoun starts with a vowel, but in nominals it also occurs with nouns that start with a consonant, e.g. 'farmer' or 'man'. Likewise, the kind of stem-initial consonant does not seem to be decisive: both the 1du pronoun and the word for 'girl' start with a nasal, but the latter takes *-o-*, while the former does not; both the 1sg pronoun and the proper name Kuyu'k start with a velar stop, but only the latter requires *-o-* in the dative. There is also not an obvious morphosyntactic trigger for *o*-insertion since *-o-* occurs across all person (1st, 2nd, 3rd) and number values (sg, du, pl). We thus have to leave the determination of the function or insertion context of *-o-* for future research and gloss it as a linker (L) in what follows. It is notable, however, that this linker element occurs with those pronouns in dative case which are clearly morphologically complex, viz. the dual and plural ones.

Concerning the nature of the dative marker *a-*, the question is whether it is a preposition or a prefix. The data we have so far does not allow us to draw a definitive conclusion, but the distribution of this marker in conjunctions sheds some light on the issue. Consider (12) where the recipient is a coordination of to (pro)nominal elements:

(12) Coordination of recipients:[8]

a. Loar dóng urăq a-ku anho'a a-o-koónh ngku'k
Loar give book DAT-1SG and DAT-L-man that
"Loar gives the book to me and him/the man."

[7] A note on orthography: Our native speaker informant does not separate the dative marker *a-* from the pronouns in her orthographic representation when the *o*-morpheme is absent. Thus, she writes e.g. *aku*, *ahe*; the hyphen in tables (8) and (9) represents the morphological segmentation. If, however, *o* occurs in addition to *a-*, she separates both markers with a hyphen: *a-o*-nominal element.

[8] Note that the coordinating conjunction in Ta'oih is identical to the basic form of the 2du pronoun, viz. *anho'a*. This element is not an NP-specific coordinator but is also used to conjoin clauses; its form is invariant and does not vary e.g. with the number of referents in the conjuncts. Ta'oih thus exhibits what is called *inclusory conjunction* in the typological literature (see Haspelmath 2007*a* on semantic types of coordination and coordinators in the languages of the world).

b. Loar dóng urăq a-o-inho'a anho'a a-o-ndil
Loar give book DAT-L-2SG and DAT-L-girl
"Loar gives the book to you(du) and the girl."

Crucially, the dative marker has to be repeated in front of each conjunct, leaving it out in one of them leads to ungrammaticality. This behavior is common for affixes, which usually cannot be dropped (unless a language allows for suspended affixation) and, being an integral morphological component of the conjoined nouns, must occur in each conjunct. Adpositions, on the other hand, can (and often do) appear only once with a coordination, see e.g. the English example *I gave a book to John and (to) Anna.*, where we coordinate two noun phrases rather than two prepositional phrases, and hence the preposition occurs only once in front of the entire coordination. We take the repetition of the dative marker in Ta'ioh coordination structures to support an analysis of *a-* as a prefix.

3.2 Encoding of other arguments in the ditransitive frame

In this subsection we address how the two other arguments in a sentence with a ditransitive verb, viz. the agent (A) and the theme argument (T), are encoded. (13) provides the frame used to elicite the form of the theme argument (to be filled in at the underlined position):

(13) Kuyu'k thoar pakkăh __ a-o-Loar
Kuyu'k introduce T DAT-L-Loar
"Kuyu'k introduces T to Loar."

When we put pronouns (varied by person and number) and other nominal expression (proper names, kinship terms, common nouns) in the theme slot, their form is identical to the basic form used in S-, A- and P-function listed in section 2. Put differently, there is no special morphological marking of ditransitive vs. transitive direct objects (patient/theme arguments). (14) gives five examples for illustration, but any of the other (pro)noun forms we find with (in)transitive verbs can be put in the T-slot as well.

(14) a. Kuyu'k thoar pakkăh he a-o-Loar
Kuyu'k introduce 1PL DAT-L-Loar
"Kuyu'k introduces us(pl) to Loar."
b. Kuyu'k thoar pakkăh măi a-o-Loar
Kuyu'k introduce 2SG DAT-L-Loar
"Kuyu'k introduces you(sg) to Loar."
c. Kuyu'k thoar pakkăh anho'a a-o-Loar
Kuyu'k introduce 3DU DAT-L-Loar
"Kuyu'k introduces them(du) to Loar."
d. Kuyu'k thoar pakkăh akoonh a-o-Loar
Kuyu'k introduce father DAT-L-Loar
"Kuyu'k introduces father to Loar."
e. Kuyu'k thoar pakkăh kăn ngku'k a-o-Loar
Kuyu'k introduce woman that DAT-L-Loar
"Kuyu'k introduces the woman/her to Loar."

The agent argument of ditransitives is also identical in form to the A-argument of a transitive verb (and hence also to an argument in S-, P- and T-function). Thus, the proper

name *Kuyu'k* in (13) can be replaced by any of the (pro)nominal expressions encountered in section 2, too, and lead to a grammatical sentences (as long as the A-argument is no co-referent with any of the other arguments in the clause, of course). The form of the ditransitive verb does not vary with the phi-features of any of the three arguments of a ditransitive verb, i.e. there is no agreement morphology, just as with (in)transitive verbs.

3.3 Alignment of case and agreement with ditransitives

The findings laid down in this section lead to the following conclusion about ditransitive alignment in comparison to transitive alignment: First, Ta'oih has neutral alignment of agreement – there is no agreement morphology at all on the verb that reflects features of its arguments, regardless of the transitivity of the verb. Second, Ta'oih exhibits indirective alignment in sentences with a ditransitive verb: The T-argument is encoded exactly like the P-argument, but differently from the R-argument ($\{ P = T \} \neq R$). The only argument of a ditransitive verb that receives a special morphological encoding is the R-argument: it is preceded by the prefix *a-*, a dative case marker. The agent of a sentence always has the same morphological form, independent of the transitivity of the verb.

4 Investigation of argument encoding splits

Many languages of the world exhibit splits in their morphological alignment, i.e., the encoding of an argument varies depending on the inherent properties of the argument or other elements in the clause. This phenomenon is called split marking or differential argument encoding (for typological studies of alignment splits see among others Hale 1972; Silverstein 1976; Moravcsik 1978; Comrie 1979; Dixon 1979; 1994; Lazard 1984; Bossong 1985; Aissen 1999; 2003; Siewierska 2004; Malchukov 2008; De Hoop and De Swart 2009; Haspelmath 2018; Witzlack-Makarevich and Seržant 2018). Cross-linguistically common contexts that trigger encoding splits are animacy, person, number and definiteness of the argument, as well as the tense/aspect value of the clause and clause embedding. In what follows we provide examples form (some of) these contexts in Ta'oih in transitive sentence frames to check whether the languages exhibits splits in its alignment patterns.[9] To anticipate the results, we found no evidence for any alignment splits in Ta'oih.

In some languages the animacy (human vs. animate vs. inanimate) of an argument has an influence on its morphological encoding. The previous examples had mainly human referents in argument positions. (15) provides animate and inanimate referents in S-, A- and P-function for comparison; (15-a,b) are repeated from section 2:

(15)
a. tôm ndong dăm
tree fall
"The tree falls."

b. O pa-dăm tôm ndong
3SG CAUS-fall tree
"He fell a tree."

c. Ku akăh acho
1SG see dog
"I see a dog."

d. Acho akăh ku
dog see 1SG
"A dog sees me."

e. Ku chos amo
1SG hit stone
"I hit a stone."

f. Amo pa-chos ku
stone CAUS-hit 1SG
"A stone hit me."

[9] We will not address person and number in this section because they have already been discussed in sections 2 and 3. As the examples in these sections show, there is no influence of person and number on the morphological encoding of the arguments of (in-/di-)transitive verbs.

The examples show that non-human arguments are encoded just like human arguments with respect to transitive alignment (but in fact this also holds for ditransitive alignment): there is no verbal agreement and arguments (apart from those in R-function) do not bear case marking. Thus, there is no encoding split triggered by animacy in Ta'oih.

Next, consider the factor definiteness. The definiteness scale along which many languages exhibit encoding splits (with different cut-off points) is given in (16):

(16) definiteness scale:
pronoun ≻ proper name ≻ definite NP ≻ indefinite specific NP ≻ indefinite non-specific NP

We have already seen in the previous sections that pronouns and proper names are encoded alike in S-, A-, P-, T- and R-function: Both receive the dative marker *a-* in R- function and no morphological marker in any of the other functions. The sentences in (17) shows for the noun *acho* 'dog' that nouns – whether they are interpreted as definite or (non-specific/specific) indefinite – do not differ in this respect from pronouns and proper names. Note that the word *minéng* in (17-c,d) enforces a specific indefinite reading of the following noun;[10] the non-specific indefinite reading is one of the available readings for a bare noun, but this reading can be reinforced by adding the plural marker *mu* in front of the noun *acho* 'dog' in (17-a,b).

(17) a. ku akăh acho
1SG see dog
"I see a dog." *non-specific*

b. acho akăh ku
dog see 1SG
"A dog sees me." *non-specific*

c. ku akăh minéng acho
1SG see one dog
"I see a certain dog." *specific*

d. minéng acho akăh ku
dog see 1SG
"A certain dog sees me." *specific*

e. ku akăh acho ngku'k
1SG see dog that
"I see this dog." *definite/deictic*

f. acho nnâq akăh ku
dog this see 1SG
"This dog sees me." *definite/deictic*

We can thus conclude that definiteness also does not cause encoding splits in Ta'oih.

We now turn to embedding. In some languages arguments in embedded clauses are encoded differently than arguments in root clauses.[11] (18) provides some examples that illustrate that this is not the case for S-, A- and P-arguments in Ta'oih (but the same holds for R- and T-arguments of ditransitives): These arguments are encoded exactly like their counterparts in root clauses.

[10] We leave it for future research to determine the exact category, type and semantics function of this word in Ta'oih.

[11] This kind of split marking is found both in nominalized embedded clauses (e.g. in Turkish, Kornfilt 1997) as well as in non-nominalized embedded clauses (e.g. in Sierra Popoluca, De Jong Boudreault 2009.

(18) a. Loar kanóq kú'q ku karlúh
Loar think that 1SG run
"Loar thinks that I run."
b. Loar kanóq kú'q ku dăm
Loar think that 1SG fall
"Loar thinks that I fall."
c. Loar kanóq kú'q ku akăh măi
Loar think that 1SG see 2SG
"Loar thinks that I see you(sg)."
d. Loar kanóq kú'q măi akăh ku
Loar think that 2SG see 1SG
"Loar thinks that you(sg) see me."
e. Loar kanóq kú'q akoónh akăh măi
Loar think that father see 2SG
"Loar thinks that father saw you(sg)."

Finally, we investigate whether the choice of tense/aspect has an influence on argument encoding in Ta'oih. Ta'oih verbs do not inflect for tense and aspect; rather, the language uses particles to express these categories. The examples we have considered so far had no such particles. According to Tran (2019), the temporal and aspectual interpretation of such sentences is determined by the lexical aspect of the verb (bound vs. unbound). Let us examine sentences with overt tense/aspect configurations: perfective, imperfective/continuous and future in a transitive frame. Tense and aspect are expressed by particles in the language.

(19) a. Ku lâi jê urăq
1SG read PFV book
"I have read the book." (I have finished it.) *perfective*
b. Ku nnoóng lâi urăq
1SG IPFV read book
"I am reading the book." (I am yet to finish) *imperfective*
c. Ku măl lâi urăq
1SG FUT read book
"I will read the book." (next week) *future*

In these sentences the tense/aspect value has no influence on the encoding of the arguments. Since they are in A- and P-function the arguments do not bear any special morphological marking and do not trigger agreement on the verb.

To summarize, none of the contexts that tend to trigger encoding splits in the languages of the world has an effect on argument marking in Ta'oih.

5 Encoding of other relations

In this section we examine the encoding of some other argument types (obliques, non-verbal arguments) in Ta'oih. We will first discuss the encoding of benefactives and experiencer / non-agentive subjects. In a number of languages roles are encoded like R-arguments in a number of languages and we want to see whether this also holds for Ta'oih. Second, we consider the encoding of possessors (nominal arguments) in the language.

5.1 Encoding of benefactives

Recall that recipient (goal) arguments of ditransitives are preceded by the marker *a-* (sometimes followed by *-o-*) in Ta'oih, glossed as dative in this paper, see the tables in (8) and (9). Cross-linguistically, benefactives are often encoded similarly to recipients due to the similarity of their role played in the sentence (both goal-recipients and benefactives receive something). (20) provides a few Ta'oih examples with (pro)nominal benefactives (applied argument to an underlyingly transitive verb):

(20) Benefactives:

a. Ku takoóh adéh a-o-akăq u-iauq
1SG cook DAT-L-woman MOD-old
"I cook for the old woman."

b. Ku takoóh adéh a-o-akoonh
1SG cook DAT-L-father
"I cook for father."

c. Ku takoóh adéh a-măi
1SG cook DAT-2SG
"I cook for you(sg)."

d. Ku takoóh adéh a-o-akoónh anho'a a-măi
1SG cook DAT-L-father 3DU DAT-2SG
"I cook for father and you."

The examples show that benefactive arguments are encoded exactly like R-arguments in Ta'oih: They are preceded by the dative marker *a*. This holds in general, not just for the nominal elements illustrated in (20), but for all other pronouns, common nouns, kinship terms and proper names. Moreover, the distribution of the linking element *-o-* exactly mirrors the one we saw for R-arguments. Thus, the encoding of benefactive arguments is identical to the one for recipients in the ditransitive frame in (8) and (9). (20-d) shows that, as with goal arguments, the dative marker occurs in every conjunct when benefactives arguments are conjoined; this points towards its affixal nature.

5.2 Encoding of non-agentive subjects

Non-agentive subjects, viz., experiencer subjects or subjects of inactive / existential verbs are often encoded differently from agentive subjects and more like obliques (see e.g. Haspelmath 2001 on European languages). (21) provides some examples with such subjects (of intransitive and transitive verbs as well as of non-verbal predicates) from Ta'oih; note that the subject in existential clauses follows the verb.[12] The examples show that non-agentive subjects are encoded like agentive subject in the language, i.e., they do not receive any additional morphological marking but occur in their bare form.

(21) a. vê ndil kât ntúq tanteéch
exist girl at market
"There is a girl at the market." *existential verb*

b. vê aluq kât Vietnam
exist tiger in Vietnam
"There are tigers in Vietnam." *existential verb*

[12] See Tran 2019 for a study of the syntax of existential constructions in Ta'oih.

c. kăn ngku'k aleq
woman that tired
"The woman is tired." *experiencer subject, Adj-predicate*

d. Akoonh aleq
father tired
"Father is tired." *experiencer subject, Adj-predicate*

e. măi / ku aleq
2SG / 1SG tired
"You(sg)/I are/am tired." *experiencer subject, Adj-predicate*

f. kăn ngku'k júh koonh ngku'k
woman that like man that
"The woman likes him/the man." *experiencer subject, V-predicate*

g. Măi júh he
2SG like 1PL
"You(sg) like us." *experiencer subject, V-predicate*

h. Ku júh o
1SG like 3SG
"I like her/him/it." *experiencer subject, V-predicate*

i. Ape júh ku
3PL like 1SG
"They like me." *experiencer subject, V-predicate*

j. Akoónh pareaq ku
father bother 1SG
"Father bothers me." *experiencer subject, V-predicate*

k. Măi pareaq koónh ngku'k
2SG bother man that/3SG
"You bother the man/him." *experiencer subject, V-predicate*

5.3 Encoding of possessors

In this subsection we consider the encoding of possessors in Ta'oih. (22) provides examples with pronominal possessors and (23) adds proper name, kinship term and common noun possessors. All examples include the 3rd person singular (alienable) possessum *urăq* 'book'.

(22) Pronominal possessors:

a. urăq ng-ku
book GEN-1SG
"my book"

b. urăq m-măi
book GEN-2SG
"your(sg) book"

c. urăq ng-o-koonh ngku'k
book GEN-L-man that
"his/the man's book"

d. Urăq ng-o-kăn ngku'k
book GEN-L-woman that
"her/the woman's book"

e. Urăq ng-o
book GEN-3SG
"her/his/its book"
f. Urăq ng-he
book GEN-1PL
"our(pl) book"
g. Urăq ng-nhăng
book GEN-1DU
"our(du) book"
h. Urăq ng-o-ipe
book GEN-L-2PL
"your(pl) book "
i. urăq ng-o-inho'a
book GEN-L-2DU
"your(du) book"
j. Urăq ng-o-ape
book GEN-L-3PL
"their(pl) book"
k. Urăq ng-o-anho'a
book GEN-L-3DU
"their(du) book"

(23) NP/proper name possessors:
a. Urăq ng-o-Loar
book GEN-L-Loar
"Loar's book"
b. Urăq ng-o-kăn ngku'k
book GEN-L-woman that
"the woman's book"
c. Urăq ng-o-koónh tăk are
book GEN-L-farmer
"the farmer's book"
d. Urăq ng-o-akoonh
book GEN-L-father
"father's book"

The examples show that (a) that the possessor follows the possessum in Ta'oih and (b) that the language uses dependent-marking to encode possession. With respect to (b) the head, viz., the possessum occurs in its bare form and does not receive any morphological marking to encode its function; the possessor, however, consists of the (pro)nominal stem preceded by a marker orthographically represented as *ng-* and corresponding to the sound /ŋ/. Given its function to mark possessors, we gloss it as a genitive marker GEN. Two remarks are in order. First, the genitive morpheme surfaces as /m/ instead of /ŋ/ with a 2sg possessor. We believe that this alternation is due to a regular phonological process, viz. assimilation: The genitive marker is a nasal which assimilates its place of articulation to the following consonant. More precisely, we take its underlying form to be the one with the widest distribution, viz., /ŋ/. It occurs in front of vowels, palatal, velar and uvular consonants. The stem of the 2sg pronoun starts with a bilabial consonant; /ŋ/ assimilates and surfaces as /m/ with the same bilabial place of articulation.The

second remark concerns the linking element *-o-* that surfaces in some contexts between the genitive marker and the nominal stem. We have seen this linking element also with the dative marker. In fact, the distribution of *-o-* in possessive construction is identical to its distribution with recipients and benefactives. This is obvious once we compare the dative forms of (pro)nominal arguments in (8) and (9) with the corresponding tables of genitive forms in (24) and (25). This leads us to conclude that the *-o-* fulfills the same function in both contexts:

(24) Form of pronouns in possessor function:

1sg	1du	1pl	2sg	2du	2pl	3sg	3du	3pl
ng-ku	ng-nhăng	ng-he	m-măi	ng-o-inho'a	ng-o-ipe	ng-o	ng-o-anho'a	ng-o-ape

(25) Form of other nominal expressions in possessor function:

proper name	kinship terms		common nouns	
ng-o-Kuyu'k	ng-o-akoonh	'father'	ng-o-koónh tăk are	'farmer'
ng-o-Kăn Lúq			ng-o-koonh ngku'k	'man'
			ng-o-kăn ngku'k	'woman'
			ng-o-ndil	'girl'

(26) shows how plural of the possessum is expressed: The possessum is preceded by the marker *mu* that is also used to express plural on nouns outside of the possessive construction. The encoding of the possessor is not affected by the number of the possessum, it is still as in (25) and (24).

(26) mu urăq ng-ku
PL book GEN-1SG
"my books"

When several possessors are expressed in a conjunction, the genitive marker has to be repeated in front of every conjunct, just like the dative marker, compare (12) and (27). This suggests that the genitive marker is an affix, too.

(27) a. Urăq ng-ku anho'a m-măi
book GEN-1SG and GEN-2SG
"my and your book"

b. Urăq ng-o-kăn ngku'k anho'a m-măi
book GEN-O-woman that and GEN-2SG
"her and your book"

c. Urăq ng-o-akoónh anho'a ng-o-ape
book GEN-O-father and GEN-3SG-3PL
"father's and their(pl) book"

Finally, we want to test whether the encoding of possession (and in particular of possessors) is influenced by the alienability of the possessum. As (28) illustrates, this is not the case in Ta'oih. Alienable possession (28-a,b) is encoded in exactly the same way as inalienable possession (28-c,d), viz. the possessor follows the possessum and the possessor takes the *ng*-prefix (+ the linker).

(28) (In)alienable possession:

a. mu urăq ng-ku
   PL book GEN-1SG
   "my books"

b. déng ng-ku
   house GEN-1SG
   "my house"

c. lloóng tâi ng-ku
   arm GEN-1SG
   "my arm"

d. Ikon ndil ng-o-akoonh
   child woman GEN-3SG-father
   "father's daughter"

6 Summary & comparison to Solntseva (1991; 1996)

In this paper we have investigated morphological argument encoding (case, agreement) in the highly understudied language Ta'oih (Austroasiatic, Katuic). We started with the study of the alignment of the core arguments of (in)transitive and ditransitive verbs. We found that Ta'oih exhibits neutral alignment for case with (in)transitive verbs (S, A and P are morphologically unmarked) and also neutral alignment for agreement in both (in)transitive and ditransitive frames, i.e., the verb never shows agreement with any argument, regardless of its transitivity. As for ditransitive verbs, the language exhibits indirective alignment: The R-argument receives a special morphological marking (the *a*-prefix), while the T-argument (as well as the ditransitive agent argument) are encoded like the P-argument of a transitive verb, viz., they occur in the morphologically unmarked form. We found no evidence for differential argument encoding in Ta'oih based on the cross-linguistically common triggers like animacy, definiteness, etc.. Furthermore, we considered the encoding of other relations, including the encoding of benefactives, non-agentive subjects and possessors: Applied benefactive arguments are encoded exactly like R-arguments, while non-agentive subjects are treated like agentive subjects, viz., the also occur in the morphologically unmarked form. Possessors are encoded by the prefix *ng-* /ng/ and follow the morphologically unmarked possessum. We can conclude that Ta'oih has no verbal agreement and three distinct case markers: a dative form for recipients and benefactives (*a*-prefix), a genitive form (ng-prefix) for possessors, and a basic form for all other functions.

The table in (29) summarizes the forms of pronouns and illustrates with one example the forms of other nominal elements (common nouns, proper names, kinship terms) in the relevant functions ('–' in a cell means that no morpheme is added to the nominal stem; PN = proper name, N = noun). We have segmented some of the pronominal forms in (29) that seem to us to be morphologically complex, viz., the non-first non-singular pronouns: *i-* is a marker of 2nd person and *a-* encodes 3rd person in the non-singular; *nho'a-* means dual and *pe-* plural.

(29) Case inflection in Ta'oih:

	basic (S, A, P, T)	genitive (Poss)	dative (R, Ben)
pronouns			
1SG	ku	ng-ku	a-ku
2SG	măi	ng-măi (surface: mmai)	a-măi
3SG masc	koonh ngku'k	ng-o-koonh ngku'k	a-o-koonh ngku'k
3SG fem	kăn ngku'k	ng-o-kăn ngku'k	a-o-kăn ngku'k
3SG	o	ng-o	a-o
1DU	nhăng	ng-nhăng	a-nhăng
1PL	he	ng-he	a-he
2DU	i-nhoa	ng-o-inho'a	a-o-inho'a
2PL	i-pe	ng-o-i-pe	a-o-i-pe
3DU	a-nho'a	ng-o-a-nho'a	a-o-a-nho'a
nouns			
3PL	a-pe	ng-o-a-pe	a-o-a-pe
PN	–	ng-o-Kuyu'k	a-o-Kuyu'k
kinship N	–	ng-o-akoonh	a-o-akoonh
common N	–	ng-o-koónh tăk are	a-o-koónh tăk are
morpheme	–	**ng-(o-)**	**a-(o-)**

Finally, we would like to compare our findings with those in Solntseva (1991; 1996). Recall that Solntseva's work is based on fieldwork in Vietnam from the 1980s and mainly discusses pronominal forms. The pronoun overview table provided in Solntseva (1996: 34) is by and large very similar to the forms we report in (29). She also identifies the three cases: 'initial' (" used in subject and object function", ibid.), which corresponds to what we call the basic form, dative and genitive (though she does not illustrate or mention in which contexts and for what purposes dative and genitive are used). In addition, she lists locative case – something we have not studied at all and will thus leave aside in this discussion. Solntseva notes more variation in the pronounciation of certain forms (e.g. regarding vowel quality), but this is probably due to the fact that she worked with more speakers. There are two interesting differences between Solntseva's and our data. First, she does not mention a dual form of pronouns, only a singular/plural distinction. This may be due to dialectal differences (though her informants come from the same Province as our informant) or the forms simply did not occur in her sample. We do not think that the number system has invented a third category within the last 40 years. Second, the *a*-prefix that we identified as the dative marker, also occurs in some but not all basic ('initial' case) forms in Solntseva's data, in particular with the singular pronouns. This leads to syncretism between those basic forms and their corresponding dative forms, as she notes. We did not encounter this prefix in any of our sentences with singular pronouns in S-, A- or P-function. This points to the conclusion that the pronoun paradigm has been regularized over time so that a clear morphological distinction is drawn between the basic and the dative form, viz., the syncretism is avoided and all basic forms lack the *a*-prefix now. Moreover, the linking *-o-* has a somewhat different distribution in her forms, it only occurs with dative and genitive 3pl pronouns in Solntseva's table, whereas it is far more widespread in the forms provided by our informant. In Solntseva (1991: 111) she mentions that it also has to occur when a noun is used in the genitive from (her example: 'mother's daughter'). She analyses this element as the 3sg pronoun with which it is in fact syncretic. The idea here seems to be that this element is a possessive pronoun that doubles the possessor, viz. 'mother's daughter' is actually expressed as 'mother her daughter' – such possessive constructions are attested e.g. in Germanic languages (Koptjevskaja-Tamm 2003). However, this analysis cannot be maintained for every occurrence of the linking *-o-* given its wider distribution in our data.

Solntseva (1996) reports in passing that nouns do not possess a case paradigm, viz., they only have a basic form, though she also mentions that kinship terms inflect for some cases, but does not specify or illustrate this further. Solntseva (1991: 112) adds that kinship terms could be combined with the dative marker in previous stages of the language. This is clearly different in the Ta'oih of our informant, who regularly uses the case markers for all kinds of nouns and cannot drop the dative or genitive markers in the relevant contexts. Again, this points towards more generalization and regularization of the paradigm over time. In fact, Solntseva (1991; 1996) states that Ta'oih is one of the languages of the area in a comparatively old stage and is undergoing a lot of changes concerning word order, morphological paradigms, syllable structure, etc.[13] We believe that these processes are responsible for the differences between Solntseva's and our data. A final difference concerns the form of subjects in existential and inactive verbs. Solntseva (1996: 35) claims that these often occur in the genitive form instead of the basic form in Ta'oih. However, the opposite holds in our data: These subjects have the morphologically unmarked form, never the genitive form. Maybe the use of genitive is lexically restricted to some non-active verbs we have not tested, but since Solntseva does not provide examples, we do not know which verbs and argument types her statement is based on. Given all the differences we found in coparison to Solntseva's data, it is certainly worthwhile to explore Ta'oih and its potential varieties further in the future. With the present study on morphological alignment in Ta'oih, we hope to have provided a first step in this direction .

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[13] In fact she claims that Ta'oih was a split-ergative language once, but ergativity was lost. We found no traces of ergative or of any kind of argument encoding splits anymore, so the change to neutral alignment seems to be complete.

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