Reanalyzing frustration:
event maximality and inertia in two O'dam frustratives

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1 Introduction: frustrative markers

Definition (Overall 2017). A *frustrative* is a grammatical marker that expresses the non-realization of some expected outcome implied by the proposition in the marked clause.

- Frustratives take clausal scope, are often associated with unrealized intention (as well as expectation), and involve a second proposition; this second proposition may be implicit/pragmatically determined and is typically not grammatically required.
- Frustratives operate at the interface between aspect and modality, with a range of uses that can vary cross-linguistically, depending on the TAM resources of the language in question.
- *Existing semantic work:* Copley and Harley 2014 (Tohono O'odham *cem*), Davis and Matthewson 2016, 2022 (St'àt'imcets *séna7*), Carol and Salanova 2017 (Chorote *ta*, Mẽbengokre *te*), Kroeger 2017, 2024 (Kimaragang *dara*)

1.1 A non-exhaustive list of uses

1. **Frustrative 'proper'** (cf. Carol and Salanova 2017): the event in the marked clause is fully realized, but some expected/intended result does not occur

   (1) *Huan 'at* **cem** *ku:pio g pualt*
   Juan aux-PFV FRST open DET door
   'Juan opened the door in vain.' (Tohono O'odham, Copley and Harley 2014)

   (2) *N-o-sii-∅ ku no* **dara** *it=tasu nga' n-iit-an oku-i'*
   PST-NVOL-shoo-OV 1SG already FRST NOM=dog but PST-bite-DV 1SG=EMPH
   'I shooed the dog but I got bitten anyway.' (Kimaragang, Kroeger 2017)

2. **Incompletive:** the event in the marked clause is only partially realized

   (3) *Huan 'o* **cem** *kukpi'ok g pualt*
   Juan aux-IMPF FRST open-IMPF DET door
   'Juan was trying to open the door.' (Tohono O'odham, Copley and Harley 2014)

(4) *K<um>orop no* *dara* *it=pilat* *dialo, naka-raa* *kembagu*
<AV>scab COMPL FRST NOM=wound 3SG PST.AV.NVOL-blood again
'His wound was beginning to heal/form a scab, but then it started bleeding again.'
(Kimaragang, Kroeger 2024)

- Incompletive uses have mostly been examined for telic predicates (cf. Copley and Harley 2014). In this context, the relevant culmination condition goes unrealized, and frustrativity appears akin to a (strengthened) progressive aspect, despite clausal scope
- We will suggest that frustrative incompletivity need not be tied to aspectual incompletivity: atelic predicates in O'dam can also receive 'incompletive' (non-maximal) interpretations which differ from 'proper' or 'avertive' readings

3. **Avertive:** the event in the marked clause is not even initiated (counter to expectation)

(5) *Huan 'at* *o* *cem* *kukpi'ok g* *pualt*
Juan aux.PF FUT FRST open DET door
'Juan was going to open the door.' (he tripped before he got there)
(Tohono O'odham, Copley and Harley 2014)

(6) *Iit-an* *oku no* *dara* *da-tasu* *nga'* *a=tanak* *po=ot* *nokoponii*
bite-DV 1SG COMPL FRST GEN=dog but NOM=child FOC=NOM AV.PST.say.*sii*
'I was about to be bitten by the dog, but the child said "Shii!"
(Kimaragang, Kroeger 2024)

- Avertive uses require something to be going on in the reference situation which would plausibly lead to the (frustrated) expectation; paraphrasable with 'almost' or 'nearly'
- In some languages (e.g., Tohono O'odham), avertive readings are only possible with overt futurity in the marked clause, but this is not universal (Carol and Salanova 2017; Kroeger 2024)

4. **Discontinuous past:** a past state obtained but is no longer extant (may be assimilated to 'proper' frustrativity if the expected result of a state is its continuation)

(7) *Waro* *dara* *siin* *ku* *nga'* *n-i-baray* *ky* *dot=tutang*
exist FRST money 1SG.GEN but PST-IV-pay 1SG.GEN ACC=debt
'I did have some money but I used it to pay off my debt.'
init = I had some money; *exp* = I will still have the money
(Kimaragang, Kroeger 2024)

- **Other reported uses:** (attested in O'dam, not discussed today)
  - *Optative/desiderative*: the marked clause is desired by the speaker/subject but does not obtain at reference time (also used to make polite requests; Kroeger 2017, 2024)
  - *Counterfactual conditionals:* conditional consequent does not obtain because the antecedent does not obtain (Carol and Salanova 2017; Overall 2017)

Today: we discuss the properties of two frustrative particles (see 8) in the O'dam language of northern Mexico (Tepiman < Uto-Aztecan; ISO 639-3 stp García Salido and Everdell 2020).

- O'dam is cross-linguistically rare in having two frustratives:

  (8) a. *t̶i̶i* 'FRUSTRATIVE'
  b. *t̶i̶ip(up)* 'FRUSTRATIVE.NONMAXIMAL'[1]

- The particles above have historically both been glossed as INT.NR ('nonrealized intention'), but we will argue that they are not semantically equivalent:
  - Informally, *t̶i̶i* leaves open the possibility of a "better outcome" (i.e., that the frustrated expectation can still come to pass), while *t̶i̶ip(up)* rules this out.[2]

    (9) a. *Añ* *t̶i̶i* *ni̶i̶ra-'* *gu* *camion*
    1SG.SBJ INT.NR wait-IRR DET bus
    'I'm waiting for the bus (but it still has not come)' [said while you are waiting]
    b. *Añ* *t̶i̶ipup* *ni̶i̶ra-t* *gu* *camion*
    1SG.SBJ INT.NR wait-IMPF DET bus
    'I was waiting for the bus (but it never came)'

  - Additionally: *t̶i̶i* can convey that while the event in the marked clause was realized, some expected later outcome was not (frustrativity proper), whereas *t̶i̶ip(up)* rules out that the modified event itself (success)fully occurred

    (10) *T̶i̶i* *jii* *gu* *maikol* *koba'-ram* *dai* *na* *gu* *Wendy* *cham* *mu*
    INT.NR go.PFV DET Michael La Candelaria but SUB DET Wendy NEG DIR
    da-ka-t
    be.sitting-ST-IMPF
    'Mike went to La Candelaria but Wendy wasn't there.' (He went to find her)

    (11) *T̶i̶ipup* *jii* *gu* *maikol* *koba'-ram*
    INT.NR go.PFV DET Michael La Candelaria
    'Michael almost went to La Candelaria (but never left or the bus broke down on the way).'

  - *T̶i̶i* and *t̶i̶ip(up)* differ in their relation to temporal reference, with the latter *t̶i̶ip(up)* showing a strong preference for past/perfective interpretation
  - **NB:** overt aspectual marking on the verb does not always align with the reported temporal/aspectual interpretation. However, our consultants express clear intuitions about the aspectual properties of a situation described by frustrative-marked utterances, and we rely on their descriptions over (tentative/preliminary) glosses of temporal marking.

[1] For current purposes, we treat both particles as monomorphemic, especially *t̶i̶ip(up)* . Willett and Willett (2015, 147) define an independent *pup* particle as indicating the absence of intention. However, we do not find the 3 extant examples for *pup* informative and our consultants thus far reject its independent use. We leave the correct morphological treatment of *t̶i̶i* vs. *t̶i̶ip(up)* as a topic for future investigation, but meanwhile develop an analysis in which *t̶i̶ip(up)* is strictly stronger than *t̶i̶i* (cf. Koontz-Garboden's 2007 *Monotonicity Hypothesis*.)

[2] This makes *t̶i̶i* compatible with *optative* uses (Kroeger 2017, 2024).

(12) Context: A little league team is playing against the Generales (pro baseball team in Durango, MX):

Añ *chɨi* *ɨlhi'ñ* *na=m* *gu* *a'∼alh* *ganaru-'*
1SG.SBJ INT.NR think SUB=3PL.SBJ DET PL∼child win-IRR

'I think the kids will win (as in, I have faith)'

(13) Context: you were warned not to wash with cold water, but did it anyways.

Tɨipup *tu-m-aay-a'* *gɨt*
INT.NR DUR-2SG.SBJ-get.sick-IRR CONTR

'Well I didn't get sick (even though you said I should have, or when I think I should've gotten sick)

- **Upshot:** the two O'dam frustratives exemplify all of the typical frustrative uses (including 'proper', incompletive, and avertive frustrativity), but divide up the space of meaning between the particles in a systematic way
  - *Crucially:* we never find instances of 'proper' frustrativity using *tɨip(up)* , suggesting that this particle is incompatible with complete realization of the marked event

1.2 Goals

We aim to give a (preliminary) semantic analysis of *tɨi* and *tɨip(up)* that:

(a) accounts for the distribution of 'proper', incompletive, and avertive readings
(b) sheds light on the (crosslinguistic) parameters of variation in frustrativity, with consequences for broader typology

Preview: *tɨi* and *tɨip(up)* encode a counter-to-expectation requirement in different ways

- Both particles assert that some portion of an event described by the marked clause is realized, but this is not always a complete/maximal instantiation.
- Frustrativity/unrealized expectation is **presupposed** in two distinct ways:
  - 'Weak' frustrativity: *tɨi* commits the speaker to the non-inertial continuation of the reference situation
  - 'Strong' frustrativity: *tɨip(up)* imposes non-stereotypicality by presupposing non-maximal realization of the embedded event

2 Some background on O'dam

- O'dam[3] is a Uto-Aztecan language spoken in the Mexican states of Durango, Nayarit and Zacatecas, shown in Figure 1.

[3]This language has also been called Southeastern Tepehuan (not used here). While that name does not appear to be viewed as derogatory, my consultants prefer the endonym O'dam. For anyone interested, the name *tepehuan* is of Nahuatl origin, *tepē-wan* composed of *tepe-tl* 'mountain' + *-wan* 'owners, dwellers' likely meaning 'mountain dwellers/owners,' referring to where most Tepehuan peoples lived and continue to live.

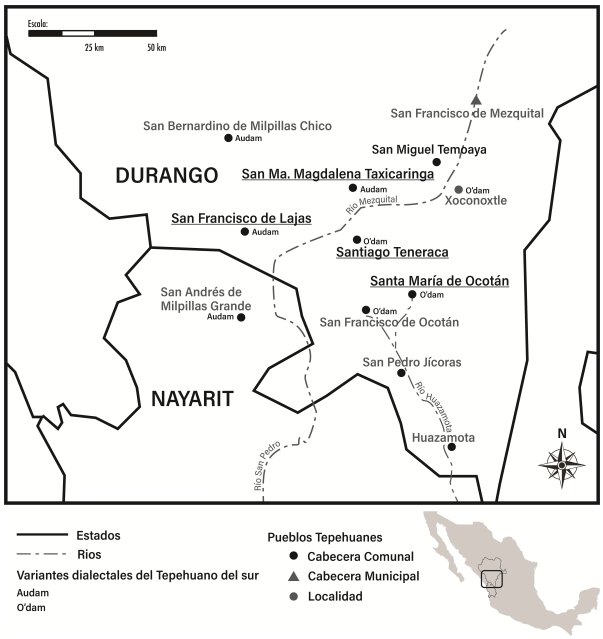
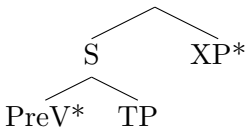


Figure 1: Map of Southern Tepehuan communities (adapted from Reyes Valdez 2007)

- The language is part of the Southern Tepehuan sub-branch. Altogether, the Southern Tepehuan languages have around ∼44,000 speakers (INEGI 2020), although the actual vitality is difficult to ascertain (see García Salido and Everdell 2020; Torres 2018).
- O'dam shares many properties with other highly agglutinating and polysynthetic languages. The only obligatory element in a clause is the verb and the relative ordering of larger phrases (DPs, PPs, CPs) is free, although the internal ordering of those phrases, except CPs, is rigid.
- The basic structure of the clause is shown in (14): the preverbal position (PreV) consists of a range of clause-modifying particles, which are common among V-initial languages (Carnie and Guilfoyle 2000, although see Everdell 2023 for arguments that O'dam is underlyingly V-final).

(14)



(15)

PreV

[Mejor sap ba' cham] nɨi'ñ-am gu alhii
better REP.UI SEQ NEG see-3PL.SBJ DET child

'Then they don't see (the) child'

- **Crucially:** O'dam frustratives always occur in PreV, taking clausal scope

3 Properties of *tɨi* and *tɨip(up)*

- **Both particles can express incompletive and avertive frustration,** as in (9) and (16)

(9) **Incompletive frustrativity**

a. *Añ* *tɨi* *nɨira-'* *gu* *camion*
1SG.SBJ FRST wait-IRR DET bus
'I'm waiting for the bus (but it still has not come)' [said while you are waiting]

b. *Añ* *t̶i̶ipup* *ni̶i̶ra-t* *gu* *camion*
1SG.SBJ FRST.NONMAX wait-IMPF DET bus

'I was waiting for the bus (but it never came)'

(16) **Avertive frustrativity**

a. *cham bia'-iñ* *gu* *popotes,* *t̶i̶i* *ba-ja-saba'n-mi̶ra-k-añi-ch*
NEG have-1SG.SBJ DET chips FRST CMP-3PL.PO-buy-MOV-PNCT-1SG.SBJ-PFV
mu tienda
DIR store

'I don't have chips, I was going to buy them at the store (but I turned around)'

b. *t̶i̶ipup* *jii-ñi-ch* *mu tienda*
FRST.NONMAX go.PFV-1SG.SBJ-PFV DIR store

'I almost went to the store (but I never even left and now I won't/can't go).'

- However **only *t̶i̶i* can express 'proper' frustrativity,** as in (17a). The minimally distinct (17b) is only felicitous on an avertive reading (*t̶i̶ip(up)* is unacceptable if the snake is dead)

(17) **'Proper' frustrativity** (only *t̶i̶i*)

a. *Ap* *t̶i̶i* *mua* *dhi-ñi* *ko'*
2SG.SBJ FRST kill.SG DEM.PROX-VIZ snake

'You killed this snake (but someone else took it to eat it)'

b. *Ap* *t̶i̶ipup* *mua* *dhi'-ñi* *ko'*
2SG.SBJ FRST.NONMAX kill.SG DEM.PROX-VIZ snake

True frustrative: #You successfully killed this snake but...
Avertive: 'You almost killed this snake (but it escaped)'

- **Further differences:** both (18a) and (18b) (with the verb *machia'* 'learn') express that the speaker's reference-time knowledge of O'dam is not sufficient for communication, but **only *t̶i̶i* allows the possibility of future fulfillment**

(18) a. Context: Wendy's mom asks me if I speak O'dam

T̶i̶i *na=ñ* *machi-a'* *gu* *o'dam*
FRST SUB=1SG.SBJ learn-IRR DET O'dam

'I'm still learning O'dam (i.e. I will continue to learn it but currently I cannot speak it adequately)

b. Context: I got in a huge fight with all of my consultants and am never coming back to Durango

T̶i̶ipup *na=ñ* *machi-a'* *gu* *o'dam*
FRST SUB=1SG.SBJ learn-IRR DET O'dam

'I almost learned O'dam (but now I never will)'

- **Note:** incompletive readings with *t̶i̶ip(up)* are best described as **non-maximal**: *T̶i̶ipup* is only ruled out when the marked predicate cannot be partially realized (i.e., where there is no way for a proper part of the target event to occur)
  - As (19) shows *t̶i̶ip(up)* is not restricted to describing developmentally-incomplete realizations of telic predicates, but can also combine with atelic predicates where an object/theme can be partially affected.

(19) *Xib* *t̶i̶ipup* *t̶i̶i-ñi-ch* *gu* *marcelo* *jix=bhai'*
today FRST.NONMAX see.PFV-1SG.SBJ-PFV DET Marcelo COP=good
jiñ-chat-iñ
1SG.MID-feel-1SG.SBJ
'I got a glimpse of Marcelo today (e.g. through the grates of a fence), I feel great!'
Speaker comment: It sounds like you're a huge fan of Marcelo.

– *T̶i̶ipup* is only ruled out when the marked predicate cannot be partially realized (i.e., where there is no way for a proper part of the target event to occur)

(20) *T̶i̶ipup* *na=ñ* *chu-mataimda-'*
FRST SUB=1SG.SBJ DUR-nixtamalize-IRR
'I was gonna nixtamalize (corn)' (defaults to avertive)
...but I didn't because I already have lots of tortillas (i.e. I don't need more)

∗ *Consequence:* any frustrative-modified situation in which the corn is nixtamalized improperly is covered by *t̶i̶i*, as in (21)

(21) a. *T̶i̶i* *tu-mataima'n-iñ* *dai* *na=ñi-ch* *alhi'ch* *mui'*
FRST DUR-nixtamalize-1SG.SBJ but SUB=1SG.SBJ-PFV a.little.bit DIR
bui'ñ *matai*
throw.PFV lime
'I am nixtamalizing (corn) but I put too little lime in' ('proper')

b. *T̶i̶i* *tu-mataima'n-iñ* *dai* *na=ñi-ch* *g̶e̶'* *mui'* *bui'ñ*
FRST DUR-nixtamalize-1SG.SBJ but SUB=1SG.SBJ-PFV big DIR throw.PFV
matai
lime
'I am nixtamalizing (corn) but I put too much lime in' ('proper')
Speaker comment: the corn will nixtamalize, but it will be different (lit. *fuerte* 'strong').

– Modifying the verb *mu'aa'* 'kill' with *t̶i̶ip(up)* as in (17b) also yields only the avertive reading: no partial realization is possible because things cannot be partly dead.

3.1 Atelic predicates

- Atelic predicates in O'dam follow our overall description of *t̶i̶i* and *t̶i̶ip(up)* . The former involves a weak commitment by the speaker to a non-inertial world, but leaves open whether the event described by the verb will be realized or not.
- Our consultants prefer proper frustrative readings of *t̶i̶i* with atelic predicates, as in (22).

(22) a. Context: you have been running every week to get in better shape
t̶i̶i *m̶i̶∼mra-iñ* *cada* *seman*
FRST PL∼run.SG every week
I run every week (but I'm still not seeing results)

b. Context: you see a dog running around in an area where you arrived, but it's owners left without it

ya' *t̵ii* *mi̵∼mra* *gu* *gagoox*
DIR FRST PL∼run.SG DET dog

'The dog is running around here (and not necessarily looking for its owners)'

- Conversely, *t̵iip(up)* is largely compatible with avertive frustrative readings when combined with atelic predicates.

(23) a. *Gu* *gagoox* *t̵iipup* *mai'g̵ii*
DET dog FRST.NMAX get.lost.SG.PFV

'The dog almost got lost'
✓it was found before it ever got lost
it was found after being lost

b. Context: some kids tied up the dog and then got it excited

Ya' *t̵iipup* *mi̵i̵* *gu* *gagoox*
DIR FRST run.SG.PFV DET dog

'The dog tried to run'
✓The dog was not able to take a step
The dog ran and was stopped at the end of its chain

- When the verb modified by *t̵iip(up)* is marked with the stativizing suffix *-ka*, we see in (24) that a discontinuous past reading is possible in addition to the avertive one.

(24) Context: you are out of shape and wanted to run every week

t̵iipup *mi̵∼mlhi-ka=ñi-ch* *cada* *semaan* *dai* *na=ñi-ch*
FRST.NMAX PL∼run.SG-EST=1SG.SBJ-PFV every week but SUB=1SG.SBJ-PFV
cham *podeeru-'*
NEG be.able.to-IRR

'I ran/wanted to run every week, but I can't'
✓You never started running
✓You ran every week, but no longer can because of other commitments (e.g. work)

- *Upshot:* Atelic predicates are largely limited to avertive readings of the *t̵iip(up)* particle. Where an atelic predicate is stativized a discontinuous past reading is possible. However, only the *t̵ii* particle is compatible with proper frustrative readings.

4 A starting point: Tohono O'odham *cem*

The frustrative particles in O'dam and Tohono O'odham are cognates, so Copley and Harley's (2014) account of Tohono O'odham *cem* seems like a natural jumping-off point:

- **Proposal:** *cem*/FRST **takes an aspectually-modified proposition** as its argument
  - (a) *cem*(p) asserts that the reference situation s verifies p
  - (b) *cem*(p) presupposes that s is not **efficacious** (i.e., develops non-inertially; cf. Dowty 1979)
- **Predicts** 'proper' frustrative, incompletive, and avertive readings from (respective) composition with *perfective, imperfective,* and *prospective*-marked propositions

- **Implementation:** Copley and Harley's (2015) **force dynamics** framework
  - (Neo-)Davidsonian events are replaced by *forces* which express deterministic relations (i.e., functions, $\langle s, s\rangle$) between *situations* ("annotated snapshots of individuals and properties"); propositions and statives are situation predicates

    (25) a. $[\![[_{\text{vP}}$ Juan open the door$]]\!] = \lambda f.\text{source}(\text{Juan}, f) \& [\![[_{\text{SC}}$ open the door$]]\!]\,(\text{fin}(f))$
    b. $[\![[_{\text{SC}}$ open the door$]]\!] = \lambda s.$the door is open in s

  - Situations are associated with **net forces** ($\text{net}(s)$) which predict their unique **successors**

    (26) a. Initial situation of a force: $\text{init}(f) = \text{net}^{-1}(f)$
    b. Final situation of a force: $\text{fin}(f) = f(\text{net}^{-1}(f))$
    c. Successor of a situation: $\text{succ}(s) = \text{fin}(\text{net}(s))$
    d. Predecessor of a situation: $\text{pred}(s) = \text{succ}^{-1}(s)$

  - Grammatical aspects map predicates of forces to predicates of situations:

    (27) a. $[\![\text{PFV}]\!] := \lambda\pi_{ft}\lambda s.\pi(\text{net}(\text{pred}(s)))$ completive/resultative
    b. $[\![\text{IMPF}]\!] := \lambda\pi_{ft}\lambda s.\pi(\text{net}(s))$ ongoing
    c. $[\![\text{PROSP}]\!] := \lambda\pi_{ft}\lambda s.\pi(\text{net}(\text{succ}(s)))$[4] in-prep

4.1 Deriving frustrative meaning in Tohono O'odham

(28) **Proposal for *cem*:** (Copley and Harley 2014, p.139)
$[\![\text{cem}]\!] := \lambda s\lambda p.p(s)$, defined iff s is not **efficacious** (the successor of s does not obtain)

1. **Proper frustrative:** *cem* + PFV
Juan's door-opening force holds of the predecessor of the topic situation, so *cem*'s presupposition requires that the situation which results from this force does not develop efficaciously (i.e., some expected consequence of the door being open does not occur)

   (1) *Huan 'at* *cem* *ku:pio g* *pualt*
   Juan aux-PFV FRST open DET door
   'Juan opened the door (in vain).'

   (29) $[\![(1)]\!] = [\![\textit{cem}(\text{PFV}([_{\text{vP}}$ Juan open the door$]))]\!]$
   $= \lambda s.\text{source}(\text{Juan}, \text{net}(\text{pred}(s))) \,\&\,$ the door is open in s, $(s = \text{fin}(\text{net}(\text{pred}(s))))$
   defined iff s is not efficacious

2. **Incompletive:** *cem* + IMPF
Juan's door-opening force is the net force of the topic situation, so its expected result (the door being open) is not realized.

   (3) *Huan 'o* *cem* *kukpi'ok* *g* *pualt*
   Juan aux-IMPF FRST open-IMPF DET door
   'Juan was trying to open the door.'

[4] This is simplified from Copley and Harley (2014); their lexical entry requires *some* (not necessarily the immediate) successor of s to have π as its net force.

(30) $[\![(3)]\!] = [\![cem(\text{IMPF}([_{\text{vP}}\text{ Juan open the door}))]\!]$
$= \lambda s.\text{source}(\text{Juan}, \text{net}(s))\ \&$ the door is open in $\text{succ}(s)$ $(\text{succ}(s) = \text{fin}(\text{net}(s)))$
defined iff s is not efficacious

3. **Avertive:** *cem* + PROSP
Juan's door-opening force holds of the net force of the successor of the topic situation s, so non-efficacy of s means that the force never arises (i.e., he does not start opening the door)

(5) *Huan 'at o* $\boxed{\underset{\text{FRST}}{cem}}$ *kukpio g pualt*
Juan aux-PF FUT FRST open DET door
'Juan is/was going to open the door.'

(31) $[\![(5)]\!] = [\![cem(\text{PROSP}([_{\text{vP}}\text{ Juan open the door}))]\!]$
$= \lambda s.\text{source}(\text{Juan}, \text{net}(\text{succ}((s))))\ \&$ the door is open in $\text{succ}^2(s)$
defined iff s is not efficacious $(\text{succ}^2(s) = \text{fin}(\text{net}(\text{succ}(s))))$

4.2 Some limitations

- **Crosslinguistically:** the force dynamics framework establishes a (sequential) causal relationship between the established proposition and the 'frustrated' situation. Davis and Matthewson (2022) have argued that this not right for all frustratives: St'át'imcets *séna7* simply presupposes the **unexpected co-occurrence** of the marked clause and a second, contextually-supplied situation[5]

(32) **Proposal for *séna7*:** (St'át'imcets; Davis and Matthewson 2022)
$[\![\text{séna7}(p)]\!]^{c,w} = [\![p]\!]^{c,w}$,
defined iff $\exists q[q(w)\ \&\ \neg\exists w'[w' \in \text{OPT}_{\text{stereo}(w),\text{ep}(\text{sp},c,w)} : p(w')\ \&\ q(w')]]$

(33) *q'wel* $\boxed{\underset{\text{FRST}}{séna7}}$ *ta=tsíken=a, t'u7 cw7áoy=t'u7*
get.cooked DET=chicken=EXIS but NEG=EXCL
kw=s=q'wel=s i=petáok=a
DET=NMLZ=get.cooked=3POSS PL.DET=potato=EXIS
'The chicken got cooked but the potatoes didn't.'
(Context: I cooked for family, and thought that potatoes & chicken would be ready together)
p = The chicken got cooked; q = The potatoes got cooked

- **O'dam-specific challenges:**

1. Non-efficacy in the force dynamics requires that the 'frustrated' situation does not and cannot obtain; this is too strong for Odam *t̶i̶i* (see above). There is no obvious way to weaken the requirement in Copley and Harley's framework.
2. Aspect is not always clearly marked in the O'dam data (unlike the Tohono O'odham data presented in Copley and Harley 2014[6]); where it is marked, it does not necessarily match the predictions of the above account (see, e.g., the distribution of perfective marking).
3. Copley and Harley's analysis does not leave room for the division of frustrative labour which we find in O'dam (i.e., no proper frustrativity with *t̶i̶ip(up)*); our intuition is that predicate completion and frustrative non-inertia need to be decoupled

[5] We stick to causal description for the time being, since we have not yet explored the full range of 'unexpected co-occurrence' readings as described by Davis and Matthewson (2022).

[6] H. Harley, p.c., reports that this may be oversimplified even for Tohono O'odham.

5 Towards an account of frustrativity in O'dam

Two key desiderata:

1. The division of labour should fall out from a simple semantic contrast between the particles
2. Non-efficacy must be variable (weak vs. strong):
   (a) 'Weak' frustrativity: non-commitment to the expected result/inertial development of the marked clause (*tɨi*)
   (b) 'Strong' frustrativity: commitment to non-maximal realization of the embedded predicate (entails non-inertial continuation; *tɨip(up)*)

5.1 Target interpretations

Basic points (cf. Copley and Harley 2014; Davis and Matthewson 2016, 2022):

(a) Frustratives assert (partial or total) realization of an eventuality predicate in their scope
(b) Frustrative-marked claims get their special effect from *not at-issue* content: specifically, a presupposition of non-stereotypicality (*non-inertia;* Dowty 1979) in the utterance context (realized in one of two ways)

- We assume a *branching time framework* (Thomason 1984): the set of accessible *historical alternatives* $\textsc{hist}(w,t)$ is the set of worlds that share a history with w through time t
- The set of *inertial futures* of context c at $\langle w,t\rangle$ is that subset of $\textsc{hist}(w,t)$ in which events in c develop in the maximally stereotypical (causally normal; Nadathur 2023) manner:

$$\textsc{inr}(c,w,t) := \textsc{best}_{\textsc{caus}(c,w,t)}(\cap\textsc{hist}(w,t))$$

We assume that a *stereotypical* ordering source is *causal* in nature (Nadathur and Filip 2021), derived from the causal laws of a contextually-relevant causal model (Kaufmann 2013)

Target readings: ignoring (not) at-issue status, assuming P denotes only maximal instantiations

1. **'Proper':** P is (maximally) completed within t but w develops non-stereotypically after t

   (34) a. Weak: $\lambda w\lambda t\lambda P.\exists e[\tau(e)\subseteq t \,\&\, P(e)(w)] \,\&\, w\notin \textsc{inr}(c,w,t)$
   Non-commitment to inertial continuation
   b. Strong: $\lambda w\lambda t\lambda P.\exists e[\tau(e)\subseteq t \,\&\, P(e)(w')] \,\&$
   $\exists q[\forall w'\in \textsc{inr}(c,w,t)[\exists t'.t\prec t' \,\&\, q(w',t') \,\&\, \neg q(w,t')]$
   Commitment to failure of specific (salient) outcome (unattested in O'dam)

2. **Incompletive:** P is partially realized at t, w continues abnormally after t

   (35) a. Weak: $\lambda w\lambda t\lambda P.\forall w'\in \textsc{inr}(c,w,t)[\exists e.\tau(e)\supseteq t \,\&\, P(e)(w')] \,\&\, w\notin \textsc{inr}(c,w,t)$
   Non-commitment to maximality/completion of P-eventuality
   b. Strong: $\lambda w\lambda t\lambda P.\forall w'\in \textsc{inr}(c,w,t)[\exists e.\tau(e)\supseteq t \,\&\, P(e)(w')] \,\&\, \neg\exists e.P(e)(w)$
   Commitment to non-maximality/non-completion of P-eventuality

3. **Avertive:** a preparatory event for P is partially realized at t, but w does not develop normally

(36) a. Weak: $\lambda w \lambda t \lambda P. \forall w' \in \text{INR}(c, w, t)[\exists e.t \prec \tau(e) \,\&\, P(e)(w')] \,\&\, w \notin \text{INR}(c, w, t)$
Non-commitment to (future) realization of P

b. Strong: $\lambda w \lambda t \lambda P. \forall w' \in \text{INR}(c, w, t)[\exists e.t \prec \tau(e) \,\&\, P(e)(w')] \,\&\, \neg \exists e.P(e)(w)$
Commitment to non-realization of P in the future

Key points:

- Frustrativity indicates that some notion of stereotypicality/expectation is actually subverted, but can vary in what the speaker is committed to
- Frustrativity interacts with temporal aspectual information, but notions of 'event completion' are not wholly aspectually-governed in O'dam:the challenge is to separate event information relevant for frustrativity from aspectual semantics
  - As formulated, **strong incompletive frustrativity** looks like the composition of a progressive proposition with a strong frustrative presupposition, but we've seen that O'dam allows readings of this sort (with *tɨip(up)*) in the absence of IMPF/PROG marking
- *Upshot:* we can make the right predictions for O'dam frustratives by separating aspect marking from event maximality

5.2 Incorporating partial realizations

Proposal: Frustrativity in O'dam (and other languages) uniformly realizes some portion of the marked eventuality (but does not inherently specify how much)

- **Incompletive frustrativity** (strong or weak) **instantiates something non-maximal** in the denotation of the input predicate (we adopt Nadathur and Filip's 2021 proposal for handling partial realizations of telic predicates; see appendix)
- Following Kroeger (2024), we treat **avertive frustrativity as a special case of the incompletive** reading: the underlying predicate P is first coerced into a (telic) inchoative $\text{INCHO}(P)$, which picks out a set of (causally) preparatory events for P's initiation

$$[\![\text{INCHO}(P)]\!] := \lambda e. \exists e'[e \prec e' \,\&\, \text{CAUSE}(e, e') \,\&\, P(e')]^7$$

- The contrast between **strong and weak frustrativity boils down to a contrast between specific and non-specific abnormality**, mediated via non-maximality
  - Weak *tɨi* presupposes that the actual world is causally atypical (from the reference perspective), but does not commit the speaker to non-realization of a particular outcome: this leaves room for 'better outcomes'
  - Strong *tɨip(up)* presupposes that atypicality is predicate-specific: maximal realization of the input predicate is precluded, blocking 'proper' frustrativity (as desired)

Lexical entries/implementation:

- FRST composes with both aspect ($\text{ASP} \in \{\text{PFV}, \text{IMPF}\}$) and a predicate of eventualities:

(37) a. $[\![\text{tɨi}(\text{ASP}, P)]\!]^{c,w,t} := \text{ASP}(P, w, t) \,\&\, \partial(w \notin \text{INR}(c, w, t))$

b. $[\![\text{tɨipup}(\text{ASP}, P)]\!]^{c,w,t} := \text{ASP}(P, w, t) \,\&\, \partial(\neg \text{MAX}(P, w, t))$

[7] This is a placeholder; the CAUSE predicate may ultimately be replaced with universal quantification over causally normal worlds, to align INCHO with Nadathur and Filip's treatment of telic eventuality predicates.

- Predicate P can be maximally or non-maximally instantiated (*modulo* cases like 17, 21): we take this to be a mereological property handled at the predicate level (i.e., partitivity is independent of aspect)

$$\text{MAX}(P) := \exists e.P(e) \,\&\, \forall e'[e \sqsubset e' \rightarrow \neg P(e')]$$

  - *T~~i~~ip(up)* presupposes non-maximality, so that only incompletive/avertive readings are possible; the weaker presupposition of *t~~i~~i* makes it compatible with all three readings
  - Assuming that maximal realization is predicted by the (causally) normal continuation of a partial P-event, *t~~i~~ip(up)* imposes a strictly stronger type of non-inertia than *t~~i~~i*

- Aspectual operators instantiate P-eventualities with respect to reference time: PFV requires that a P-event terminates within reference time, IMPF contains reference time in a P-event

(38) a. $[\![\text{PFV}]\!] := \lambda w \lambda t \lambda P.\exists e[\tau(e) \subseteq t \,\&\, P(e)(w) \,\&\, \forall e'[e \sqsubset e' \rightarrow \neg P(e')(w)]]$
b. $[\![\text{IMPF}]\!] := \lambda w \lambda t \lambda P.\exists e[\tau(e) \supset t \,\&\, P(e)(w)]$

- **Further predictions:**
  - Because *t~~i~~ip(up)* rules out maximal instantiation of P, the speaker has to have access to information which determines how the instantiated event actually turned out; this predicts the default past orientation of *t~~i~~ip(up)* claims
  - Weak frustrative *t~~i~~i* simply requires the speaker to have some reason to believe that ongoing events will not develop normally, allowing both past and present orientation for frustrative claims

- **Clausal scope(?)**
  - We believe that this (non-)maximality-based analysis of frustrativity also gives us insight into why it is that *t~~i~~i* and *t~~i~~ip(up)* differ in the extent to which they can affect the interpretation of clauses outside of the one they appear in.
  - In short, once the frustrative has affected its associated predication (e.g. by limiting it to a non-maximal instantiation) it cannot go on to frustrate a later predicate. *t~~i~~ip(up)* , then, is scopally restricted to its own clause because it must frustrate the event expressed within its clause (i.e. not some consequent event).
  - If we compare the minimally contrastive sentences in (19), with *t~~i~~ip(up)* , and (39), in *t~~i~~i* , we see that they differ in the interpretation of the subsequent copular clause. With *t~~i~~ip(up)* the copular clause asserts that the speaker is happy, while with *t~~i~~i* the copular clause is interpreted as asserting that they speaker should be *but is not* happy.

(19) *Xib* *t~~i~~ipup* *t~~i~~-ñi-ch* *gu* *marcelo* *jix=bhai'*
today FRST.NMAX see.PFV-1SG.SBJ-PFV DET Marcelo COP=good
jiñ-chat-iñ
1SG.MID-feel-1SG.SBJ
'I got a glimpse of Marcelo today (e.g. through the grates of a fence), I feel great!'
Speaker comment: It sounds like you're a huge fan of Marcelo.

(39) *Xib* *t~~i~~i* *t~~i~~-ñi-ch* *gu* *marcelo, jix=bhai'*
today FRST see.PFV-1SG.SBJ-PFV DET Marcelo COP=good
jiñ-chat-iñ
1SG.MID-feel-1SG.SBJ
'I met Marcelo today, I (should) feel good' (like you were sad or mad before meeting him and you were hoping he'd cheer you up)

5.3 Verbs and their telicity

- Thus far no description of O'dam has identified a telicity test (à la the *for/in* for English). Our judgments of telicity are based on consultants' interpretations of whether an event is associated with an end goal.
- Consequently, (a)telic interpretation can be context-dependent:

(40) a. Context: you planned to walk around Boston for the day
ya' *t̶i̶ipup* *oilhi-mi̶k-iñ̃*
DIR FRST move-PNCT-1SG.SBJ

I was going to walk around (but I suddenly got a migraine and never moved)

b. Context: You came to Durango to hang out with Wendy
ya' *t̶i̶ipup* *oilhi-mi̶k-iñ̃*
DIR FRST move-PNCT-1SG.SBJ

I was walking around (waiting for Wendy, but she was away and I had to go back to Boston)

- An implicit goal (as in 40b) can act like the culmination point of a 'waiting' event (see 9a-9b, repeated from above).

(9a) *Añ̃* *t̶i̶i* *ni̶i̶ra-'* *gu* *camion*
1SG.SBJ INT.NR wait-IRR DET bus
'I'm waiting for the bus (but it still has not come)' [said while you are waiting]

(9b) *Añ̃* *t̶i̶ipup* *ni̶i̶ra-t* *gu* *camion*
1SG.SBJ INT.NR wait-IMPF DET bus
'I was waiting for the bus (but it never came)'

- The two utterances in (41) and (42) involve modification of the verb *mi̶li̶a'*∼*bapooya'* 'run.SG/PL' by *t̶i̶i* and *t̶i̶ip(up)* , respectively.
- The continuation in the text makes an avertive reading of *bapoo'* 'run.PL' impossible with *t̶i̶i* or *t̶i̶ip(up)* . The people in the text successfully threw water on the fire, thus the running event, described by *bapooya'*, which led up to people getting water must have occurred.
- Our consultants commented that both utterances seem to have the same reading, the running did occur but the fire was not put out.

(41) *ba-mi̶i̶* *dhu* *ba'* *sap* *pui'=m* *t̶i̶i* *bapoo'* *gu* *ja'tkam*
CMP-burn.PFV EVID.DIR SEQ REP.UI SENS=3PL.SBJ FRST run.PL DET people
na=m *t̶i̶i* *tusaa-im* *bhai'=m* *t̶i̶i* *toi'bi-'ñ̃* *gu* *suudi'*
SUB=3PL.SBJ FRST put.out-PROG DIR=3PL.SBJ FRST toss.liquid-APPL DET water
chamtu' *lograru=mi̶-t* *mi'* *pu* *tu-m-ja* *bix*
NEG succeed.PFV=3PL.SBJ-PFV DIR SENS DUR-MID-burn.up/vaporize also
di∼*dios* *ami̶-t*
PL∼god 3PL.SBJ=PFV
'It was already burning, so the people ran and tried to put it out. The tried to throw water on it, but it did not work. The gods also turned to ashes'[8]

[8][que ya se quemó entonces así corrían las personas que trataban de apagar. le trataban de hechar agua no lo lograron también los dioses se hicieron cenizas]

(42) *ba-mɨi* *dhu* *ba'* *sap* *pui'=m* *tɨipup* *bapoo'...*
CMP-burn.PFV EVID.DIR SEQ REP.UI SENS=3PL.SBJ FRST run.PL

- The key to understanding why *tɨip(up)* is permitted in (42) lies in the apparently flexible telicity of O'dam verb forms. The clause in which *tɨip(up)* appears in (42) has a standard atelic interpretation out of context, as in (43).

(43) *ba'* *sap* *pui'=m* *bapoo'* *gu* *ja'tkam*
SEQ REP.UI SENS=3PL.SBJ run.PL DET people
'And so then (the) people ran'

- If this atelic interpretation were imported onto (42), we would expect *tɨip(up)* to be infelicitous, because the averted running event would contradict with the subsequent events described in the text.
- However, given that in context the running event is done *for the purpose of putting ut the fire*, a telic interpretation is possible whereby the running event ends when the fire is put out.
- On this telic interpretation of *bapooya'* in (42), some amount of the running event occurred but ended before reaching a maximal endpoint where the fire is put out.

6 Conclusions and outlook

- The challenge in analyzing frustrative marking is twofold:
  (a) explaining variability in how much of a marked event is realized
  (b) linking the marked clause and the frustrated outcome
- Existing analyses (e.g., Copley and Harley 2014) link (a) to aspectual modification, but this is not (by itself) enough to explain the distribution of O'dam frustratives
- Frustratives across languages vary in strength: the cases analyzed by Copley and Harley (2014) and Davis and Matthewson (2022) preclude a particular salient outcome, but this is too strong for O'dam *tɨi* (and other frustratives with, e.g., optative uses)
- O'dam frustrativity sheds some light on the crosslinguistic landscape:
  - The contrast between *tɨi* and *tɨip(up)* motivates a role for (potentially pragmatically-adjudicated) notions of maximality (partial realization) independent of aspect
  - The account aligns with existing work suggesting that frustratives invoke notions of abnormal or non-stereotypical development, but shows that there must be (at least) two ways of realizing this requirement
- We focused in this talk on just three uses of frustrative markers: it remains to be seen if the analysis makes the right predictions for discontinuous pasts, optative/request uses and/or frustrative-marked conditionals.

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Appendix: non-maximality for telic predicates

Nadathur and Filip (2021) propose that telicity is an inherently intensional property, building a notion of (valid) partial realization into (telic) event predicates:

- *Idea:* uninflected telic predicates denote both culminated (maximal) and non-culminated (non-maximal) eventualities
- Eventualities in $[\![P]\!]$ involve an inherent limit, often an upper bound, i.e., a *télos* (broadly construed) or *culmination condition*
- Eventualities in $[\![P]\!]$ are parts of teleologically-optimal worlds (i.e., causally normal worlds in which P's culmination condition is realized)

Teleological alternatives in causal terms:

- Given a goal G, conversational backgrounds f, g and world w, the set of teleological alternatives in w is given by: $\{w' : \text{Best}(g(w))((\cap f(w)) \cap G)\}$ (von Fintel and Iatridou 2005)
- f is circumstantial (here, historical), picking out propositions which describe goal-relevant circumstances at a particular point in time
- ordering source is stereotypical, picking out a set of causal laws describing relationships between (relevant) propositions in a causal model (Kaufmann 2013)

Given a *causal model* D encoding causal relationships between propositions in context c:

- Let $s \subseteq c$ be a starting situation s.t.:
  - s does not exhaust its own causal consequences (is open with respect to D)
  - s contains propositions specifying the conditions under which P's culmination condition (K) is realizable
- $e \in [\![P]\!]^c$ iff e is a *continuous causal development* of s in a teleological alternative for K: s provides the modal base and D the ordering source (cf. Kaufmann 2013)
- teleological alternatives are those causally optimal worlds, given s, which eventually verify K (at a time t_f, where starting time $t_0 \prec t_f$)
- P-eventualities minimally verify s at t_0
- larger P-eventualities run from s at t_0 to $s' \supset s$ at $t' \prec t_f$, tracking normal causal developments of s towards K
- maximal P-eventualities run from s at t_0 and end at t_f, verifying K
- $e_1, e_2 \in [\![P]\!]^c, e_1 \sqsubseteq e_2$ iff e_2 is an uninterrupted causal continuation of e_1 and $\exists e_3 \in [\![P]\!]^c$ s.t. $e_1, e_2 \sqsubseteq e_3$ and e_3 verifies K (at t_f)
- **Upshot:** *partial realizations* of P are unified with complete/maximal ones as events which lead to K if only s is taken into account