The ingredients of frustration
A study of two frustrative particles in O'dam

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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 expressed in the marked clause.

- Frustratives take clausal scope, are often associated with unrealized intention (as well as expectation), and often involve an implicit proposition as well as the marked clause.
- They operate at the interface between aspect and modality, with a range of uses/interpretations that can vary cross-linguistically, depending on the TAM resources of the language in question.
- *Existing work on frustrative semantics:*
  Copley and Harley 2014 (O'odham[1] *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.' (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)

[1] While published literature typically calls this language Tohono O'odham, that is more properly the name for the people, while O'odham is the name for the language.

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

(3) *K<in>ibit-Ø* *dara* *dialo i=tanak* *ku* *nga', rumosi i=tanak* *ku*
<PFV>hold.in.lap-OV FRST 3SG NOM=child 1SG but afraid NOM=child 1SG
'She (tried in vain to) hold my child in her lap, but the child was afraid.'

(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

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

(5) *Huan 'at* *o* *cem* *kukpi'ok g* *pualt*
Juan aux.PF FUT FRST open DET door
'Juan tried to/was going to open the door.' (he tripped before he got there)
(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., O'odham), avertive readings are only possible with overt future (prospective) in the marked clause, but this is not a universal requirement (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:**
  - *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 (e.g. the related O'odham language only has one):

  (8) a. *tɨi* 'FRUSTRATIVE'
  b. *tɨip(up)* 'FRUSTRATIVE.NONMAXIMAL'[2]

- The particles above have historically both been glossed as INT.NR ('nonrealized intention'), but we will argue that they are not semantically equivalent:
  - Informally speaking, *tɨi* leaves open the possibility of a "better outcome" (i.e., that the frustrated expectation can still come to pass), while *tɨip(up)* rules this out.[3]

    (9) a. *Añ* *tɨi* *nɨira-'* *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* *tɨipup* *nɨira-t* *gu* *camion*
    1SG.SBJ INT.NR wait-IMPF DET bus
    'I was waiting for the bus (but it never came)'

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

    (10) *Tɨi* *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/meet her)

    (11) *Tɨipup* *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).'

  - *Tɨi* and *tɨip(up)* differ in their relation to temporal reference, with the latter *tɨip(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. We see this in (13) where the modified verb is marked with the *-(a)'* IRREALIS (futurate) suffix but the utterance necessarily has a past orientation

[2]For current purposes, we treat both particles as monomorphemic, especially *tɨip(up)* . In the O'dam dictionary, 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 *tɨi* vs. *tɨip(up)* as a topic for future investigation.

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

– However, our consultants have very clear intuitions about the aspectual properties of a situation described by utterances with *tɨi* and *tɨip(up)* .[4] We will rely on these intuitions, rather than (tentative) glosses of tense/aspectual marking.

(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 their division of labour with respect to 'proper', incompletive, and avertive frustrativity

(b) sheds light on the (crosslinguistic) parameters of variation in frustrative meaning, 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 (cf. Copley and Harley 2014; Davis and Matthewson 2022) in two distinct ways:
  – 'Weak' frustrativity: *tɨi* commits the speaker to non-inertial (non-stereotypical) continuation of the reference situation
  – 'Strong' frustrativity: *tɨip(up)* imposes non-stereotypicality by presupposing non-maximal realization of the embedded event

[4] We attribute the apparent mismatch between our consultants' intuitions and the overt aspectual marking in the utterances we analyze to the understudied nature of O'dam aspect, which is beyond the scope of this talk.

2 Some background on O'dam

- O'dam[5] is a Uto-Aztecan language spoken in the Mexican states of Durango, Nayarit and Zacatecas, shown in Figure 1.

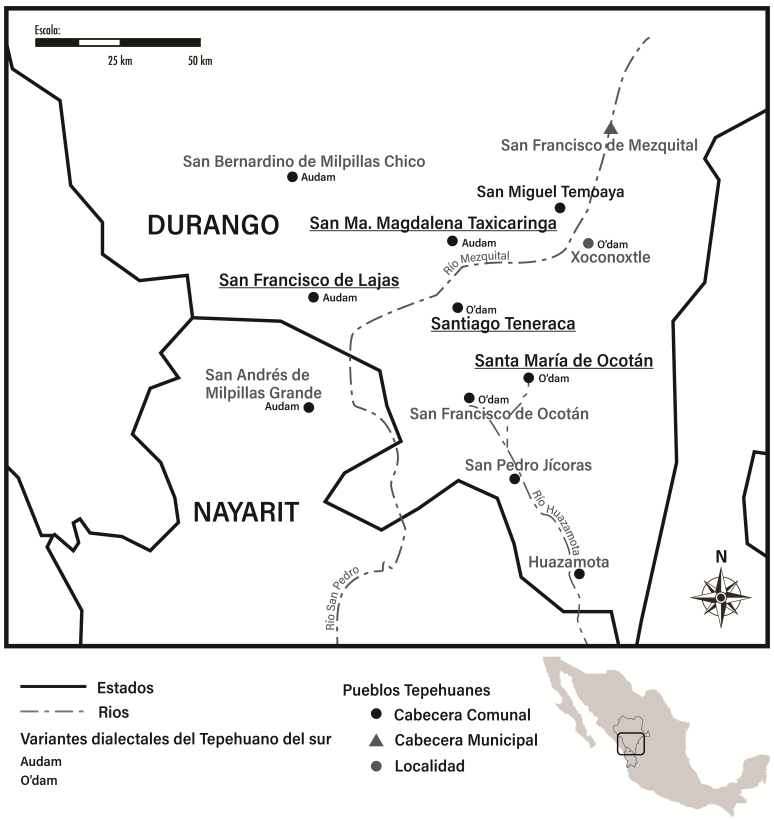
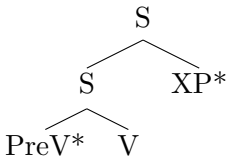


Figure 1: Map of Southern Tepehuan communities (adapted from Reyes Valdez 2007)

- 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)); see Everdell (2023) for arguments that O'dam is underlyingly V-initial)

(14)



[5]This language has also been called Southeastern Tepehuan, which I do not use in my work. 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.

(15) *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'

- Relevant here, the frustrative particles in O'dam always occur in the preverbal position and necessarily take clausal scope.

3 Properties of *tɨi* and *tɨip(up)*

- **The two particles divvy up the standard frustrative space**: both can be used to express incompletive and avertive frustration, as in (16) and (17)

(16) **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* *tɨipup* *nɨira-t* *gu* *camion*
1SG.SBJ FRST.NONMAX wait-IMPF DET bus
'I was waiting for the bus (but it never came)'

(17) **Avertive frustrativity**

a. *cham bia'-iñ gu popotes,* *tɨi* *ba-ja-saba'n-mɨra-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. *tɨipup* *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 *tɨi* can express 'proper' frustrativity, as in (18a). The minimally distinct (18b) is only felicitous on an avertive reading; in particular, *tɨip(up)* here is unacceptable on any interpretation where the snake is dead.

(18) **'Proper' frustrativity** (only *tɨi*)

a. *Ap* *tɨi* *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* *tɨipup* *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 (19a) and (19b) (with the verb *machia'* 'learn') express that the speaker's reference-time knowledge of O'dam is not sufficient for communication, but only *tɨi* **allows the possibility of future fulfillment**(*tɨip(up)* does not permit this)

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

[*Tɨi*] *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

[*Tɨipup*] *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 *tɨip(up)* can only arise where the marked predicate is capable of being 'partially' realized (i.e., where some portion of the target event can occur without bringing about a relevant result state)
  - For example, *mataimda'* 'nixtamalize' in (20) describes the process of adding lime and water to corn to soften the kernals for making tortillas. The corn begins to soften as soon as it mixes with lime and water. Therefore, there is no amount of nixtamalization that can occur without permanently affecting the corn.

(20) [*Tɨipup*] *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 *tɨi*, as in (21)

(21) a. [*Tɨi*] *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. [*Tɨi*] *tu-mataima'n-iñ* *dai* *na=ñi-ch* *gɸ'* *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 *tɨip(up)* as in (22) also yields only the avertive reading. Recall that *tɨi* in this context has a 'proper' reading (the snake is killed, but a related outcome does not occur)

(22) *Ap* [*tɨipup*] *mua* *dhi'-ñi* *ko'*
2SG.SBJ FRST kill.SG DEM.PROX-VIZ snake

'You almost killed this serpent (but it escaped)'
fine if you hurt the snake or if you didn't

(23) *Ap* *t̶i̶i* *mua* *dhi'-ñi* *ko'*
2SG.SBJ FRST kill.SG DEM.PROX-VIZ snake
'You killed this serpent (but someone else took it to eat it)'

- Finally, *t̶i̶i* need not contribute anything new, but can serve simply to emphasize the speaker's displeasure with the reference situation. Omitting *t̶i̶i* from (24) does not really change its interpretation.

(24) *Gu* *mitstuiñ* *tuspu* *gu=ñ* *jooxia'* *gio* *na=ñ* *(ch̶i̶i)* *(más)*
DET cat lick.PFV DET=1SG.POSS plate COORD SUB=1SG.SBJ FRST más
ka-x=bhio'
PERF-COP=hungry
'The cat licked my plate and I'm still hungry'

  - In this context, *t̶i̶ipup* particle in (25) targets the hunger state and conveys that it no longer applies (discontinuous past)

(25) *Gu* *mitstuiñ* *tuspu* *gu=ñ* *jooxia'* *gio* *na=ñ* *ch̶i̶ipup*
DET cat lick.PFV DET=1SG.POSS plate COORD SUB=1SG.SBJ FRST
(más) *ka-x=bhio-ka-t*
más PERF-COP=hungry-ST-IMPF
'The cat licked my plate and I was still hungry (but not now)' (discontinuous past)

For today: we focus on the division of labour in 'proper', incompletive, and avertive uses.

4 A starting point for analysis: O'odham *cem*

Since O'dam and O'odham are closely related (and the frustrative particles are cognates), Copley and Harley's (2014) account of the O'odham frustrative *cem* offers a natural jumping-off point:

- Copley and Harley propose that *cem* takes an aspectually-modified proposition p as argument:
  (a) *cem*(p) asserts that the reference situation s verifies p
  (b) *cem*(p) presupposes that s is not *efficacious* (i.e., that it does not develop inertially; cf. Dowty 1979)
- **Predicts** 'proper' frustrative, incompletive, and avertive readings in combination with *perfective, imperfective,* and *prospective*-marked propositions (respectively)[6]
- Formal implementation uses Copley and Harley's (2015) **force dynamics** framework, where:
  - Propositions (and statives; 27b) are treated as predicates of situations ("annotated snapshots of individuals and properties")
  - (Neo-)Davidsonian events are replaced by *forces* which express deterministic relations between situations (type $\langle s, s\rangle$)

(26) The *net force* of a situation s (net(s)) predicts its (unique) *successor* (succ(s)):
  a. Initial situation of a force: $\text{init}(f) = \text{net}^{-1}(f)$

[6] With a bit of work, it also predicts discontinuous past uses, but we'll set these aside here

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: $\text{pred}(s) = \text{succ}^{-1}(s)$

– A situation s is **efficacious** iff $\text{succ}(s)$ obtains

– Eventive vPs are predicates of forces ($\langle f, t\rangle$)

(27) 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

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

(28) 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. $[\![\text{PROSP}]\!] := \lambda\pi_{ft}\lambda s.\pi(\text{net}(\text{succ}(s)))$[7] in-prep

4.1 Deriving frustrative meaning in O'odham

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
Uninflected predicate holds of the predecessor of the topic situation, defined iff some expected consequence of this predicate is not realized in the topic situation

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

(30) $[\![(29)]\!] = [\![cem(\text{PFV}([_{\text{vP}}$ 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[8]
Juan succeeded in opening the door, but either the door did not remain open or the reason for which the door was opened was not fulfilled

2. **Incompletive:** *cem* + IMPF
The uninflected predicate holds of the net force of the topic situation, defined iff the uninflected predicate is not fully realized

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

[7] 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.

[8] Copley and Harley (2014) treat the result of an accomplishment predicate as a stative; efficacy for states requires either that the state persists or that some plan which depends on the state is not realized; we set this aside here.

(32) $[\![(31)]\!] = [\![cem(\text{IMPF}([_{\text{vP}}\text{ Juan open the door}))]\!]$
$= \lambda s.\text{source}(\text{Juan}, \text{net}(s))\,\&\,\text{the door is open in succ}(s)$ $(\text{succ}(s) = \text{fin}(\text{net}(s)))$
defined iff s is not efficacious
Juan exerted a door-opening force but failed to actually/fully open the door

3. **Avertive:** *cem* + PROSP
The uninflected predicate holds of the net force of the successor of the topic situation, defined iff the uninflected predicate is not actually initiated

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

(34) $[\![(33)]\!] = [\![cem(\text{PROSP}([_{\text{vP}}\text{ Juan open the door}))]\!]$
$= \lambda s.\text{source}(\text{Juan}, \text{net}(\text{succ}((s)))\,\&\,\text{the door is open in succ}^2(s)$
defined iff s is not efficacious $(\text{succ}^2(s) = \text{fin}(\text{net}(\text{succ}(s))))$
Juan was preparing to open the door, but the target of his preparation was not realized

4.2 Some limitations

- **Crosslinguistically:** the force dynamics framework establishes a (sequential) causal relationship between the established proposition and the 'frustrated' situation. This may not extend to frustratives in other languages: for instance, Davis and Matthewson (2022) argue that the St'át'imcets frustrative *séna7* simply presupposes the unexpectedness of the co-occurrence of the marked clause and a second, contextually-supplied situation[9]

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

(36) *q'wel* $\boxed{\textit{séna7}}$ *ta=tsíken=a, t'u7 cw7áoy=t'u7*
get.cooked FRST 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 obtain; this is too strong for Odam *tii* (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 O'odham data presented in Copley and Harley 2014[10]); where it is marked, it does not necessarily match the predictions of the above account (see, e.g., the distribution of perfective marking)

[9] 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).
[10] H. Harley, p.c., reports that this may be oversimplified even for O'odham.

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 *tiip(up)*)

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 of the marked clause (*tii*)
   (b) 'Strong' frustrativity: commitment to non-realization of the expected result (*tiip(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 in the utterance context (realized in one of two ways)

Within a standard possible-worlds semantics, we assume that (ab)normality is captured via the notion of *inertial continuation* (cf. Dowty 1979)

Additional assumptions:

- A *branching time framework* (Thomason 1984):
  The set of accessible *historical alternatives* $\textsc{hist}(w,t)$ at a given world-time index comprises the set of worlds which share a history with w up to and including 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 for the moment

1. **'Proper' frustrativity:** topic situation realizes P but continues non-stereotypically

(37) a. Weak: $\lambda w\lambda t\lambda P.\forall w' \in \textsc{inr}(c,w,t)[\exists e.\tau(e) \subseteq t \,\&\, P(e)(w')] \,\&\, w \notin \textsc{inr}(c,w,t)$
Non-commitment to inertial continuation

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

2. **Incompletive:** P is in progress in the topic situation, which continues abnormally

(38) a. Weak: $\lambda w \lambda t \lambda P. \forall w' \in \text{INR}(c, w, t)[\exists e. \tau(e) \supseteq t \,\&\, P(e)(w')] \,\&\, w \notin \text{INR}(c, w, t)$
Non-commitment to maximality/completion of P-eventuality

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

3. **Avertive:** P is normally projected, but the topic situation does not continue stereotypically

(39) 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:

- 'Proper' vs. incompletive vs. avertive frustrativity is linked to aspectual(ly relevant) information about the relative instantiation of an embedded eventuality and reference time
- Frustrativity indicates that some notion of stereotypicality/expectation is actually subverted, but can vary in commitment strength
- The challenge is to separate purely aspectual information from the (modal) content of the frustrative (easier said than done; see, e.g., reference to inertial alternatives for both progressive aspect and frustrative modality)
- Strong 'proper' frustrativity is markedly more complex than the other readings, which make reference only to some instantiation of the embedded predicate; notably, this is the reading that O'dam apparently lacks

5.2 Incorporating partial realizations

We can simplify things by building a notion of partial realization into (telic) event predicates: ultimately, we want to extend this to a more general notion of (non-)maximal realization

Nadathur and Filip (2021) on telic non-culmination:

- Nadathur and Filip propose an inherently intensional view of telicity, on which an uninflected telic predicate P denotes both culminated and non-culminated eventualities
- Eventualities in $[\![P]\!]$ involve an inherent limit, often an upper bound, i.e., a télos (broadly construed, including upper bounds of predicates of non-intentional eventualities)
- 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 an evaluation world w, the set of teleological alternatives in w is given by: $\{w' : \text{Best}(g(w))((\cap f(w)) \cap G)\}$
- 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

Application to frustratives:

- Frustrativity in O'dam (and other languages) uniformly realizes some portion of the marked eventuality (but does not inherently specify how much)
  - 'Proper' frustrativity realizes a maximal P-eventuality, while incompletive frustrativity instantiates something non-maximal
  - 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 INCHO(P), which picks out a set of (causally) preparatory events for P's initiation
- The contrast between strong and weak frustrativity boils down to a contrast between specific and non-specific abnormality
  - 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 P is precluded, blocking 'proper' frustrativity (as desired)

Lexical entries/implementation: two routes

- **Option 1.** FRST composes with an eventuality predicate P and a (covert) partitive operator:

(40) a. $\text{MAX}(P, w, t) = \exists e.\tau(e) \circ t \,\&\, e \text{ in } w \,\&\, P(e) \,\&\, \forall e'[P(e') \,\&\, e \sqsubseteq e' \rightarrow e' = e]$
b. $\text{NONMAX}(P, w, t) = \exists e.\tau(e) \circ t \,\&\, e \text{ in } w \,\&\, P(e) \,\&\, \exists e'[P(e') \,\&\, e \sqsubset e']$

  - The presupposition of *tɨip(up)* blocks composition with PART = MAX, permitting only incompletive (and/or avertive) interpretations; *tɨi* is compatible with both (40a)-(40b)

(41) a. $[\![\text{t}\sout{\text{i}}\text{i}(\textsc{part}, P)]\!]^{c,w,t} := \textsc{part}(P, w, t)\,\&\,\partial(w \notin \textsc{inr}(c, w, t))$,
where $\textsc{inr}(c, w, t)$ is the set of maximally causally normal futures projected from context c in world w at time t

b. $[\![\text{t}\sout{\text{i}}\text{ipup}(\textsc{part}, P)]\!]^{c,w,t} := \textsc{part}(P, w, t)\,\&\,\partial(\neg\textsc{max}(P, w, t))$

- *Challenge:* partitive operators cannot be identified with O'dam grammatical aspects in the (seemingly) natural way

- **Option 2.** FRST composes with an eventuality predicate and an aspectual operator which is underspecified for (non)maximality

(42) a. $[\![\text{t}\sout{\text{i}}\text{i}(\textsc{asp}, P)]\!]^{c,w,t} := \textsc{asp}(P, w, t)\,\&, \partial(w \in \textsc{inr}(c, w, t))$

b. $[\![\text{t}\sout{\text{i}}\text{ipup}(\textsc{asp}, P)]\!]^{c,w,t} := \textsc{asp}(P, w, t)\,\&\,\partial(\neg\textsc{max}(P, w, t))$

- *Idea:* aspect instantiates a P-eventuality (which can be non-maximal)
- The typical effects of grammatical aspect (completive vs. ongoing) are handled independently of event maximality

- In order to adjudicate between these two options, we will need to examine the aspectual system of O'dam in closer detail: evidence from frustrated atelic predicates suggests that event maximality and aspect should be decoupled

(43) *Xib* *t̶i̶ipup* *t̶i̶-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.

6 Conclusions and outlook

Summary:

- 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 *t̶i̶i* (and other frustratives with, e.g., optative uses)
- O'dam frustrativity sheds some light on the crosslinguistic landscape:
  - The contrast between *t̶i̶i* and *t̶i̶ip(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

Outlook, extensions:

- 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
- Our implementation focuses on telic predicates, but examples like (43) (and others) show that a notion of non-maximality must extend to atelic predicates as well
- Finally, there are some open questions with respect to the (clausal) scope of the particles, as the contrast between the biclausal examples (44) and (43) shows:

(44) *Xib* *~~ti~~i* *~~ti~~i-ñi-ch* *gu* *marcelo, jix=bhai'* *jiñ-chat-iñ*
today FRST see.PFV-1SG.SBJ-PFV DET Marcelo COP=good 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)

(43) *Xib* *~~ti~~ipup* *~~ti~~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.

  - In (44), the unmarked clause is interpreted as an unfulfilled desire, suggesting that the interpretive consequences of *~~ti~~i* can scope beyond the clause in which it appears. In contrast *~~ti~~ipup* in (43) only affects the marked clause.

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