Universal and definite WHEN-clauses in Indo-European and beyond

A study in token-based typology

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(based on joint work with Oleg Belyaev and Nilo Pedrazzini)

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31 August 2023

Typology of relative clauses

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    - Can the relative clause follow the noun?
    - Can the relative clause precede the noun?
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- No semantics!
- Is the semantics of RCs just too boring? No…

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In Ossetic, no indefinite interpretation of NPs (Belyaev & Haug, 2014):

(3)   *didinǯ-ətɜ* **sə**   **čəžg-ɜn** *balɜvar kodtaj,* **wəj** *fedton*
        flowers   what to.girl   you.presented her   I.saw
        ≈ which girl you gave flowers, I saw her
        'I saw **the girl which** you gave flowers to.'

Maximality: definiteness vs. universality

Dayal (1995): maximality can be definiteness or universality

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- Belyaev & Haug (2020) tried to track these meanings across correlative constructions

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English examples after (Hinrichs, 1986):

(5) a. When John saw Mary, he crossed the street.
     b. When John wrecked the Pinto, he broke his arm.
     c. When the Smiths threw a party, they invited all their friends.

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This distinction is lexicalised in e.g. German (and Norwegian):

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- Noted in the formal semantic literature (Hinterwimmer, 2008; Sæbø, 2011)
- To my knowledge, not much discussed in the typological literature except Kortmann (1997)
- Yet we will see that it exists in many languages

Affinity temporal clauses/relative clauses

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(8)   *Asla:m a:v*   *tami sa:tɨ, yemi*   *sa:tɨ ...*
      Aslam come.PST REL time CORR time
      ≈ 'which time Aslam came, that time ...'
      'At the time Aslam came, (Mohan was running)'

                      (Kashmiri, Indo-European, Koul & Wali 2006, 159)

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- We have seen that
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- Can we apply what we know about the universal/definite contrast in the domain of relative clauses to WHEN-clauses?
- In particular, Belyaev & Haug 2020 demonstrated a correlation between the morphology of *correlativizers* and the universal/definite distinction
- Does something similar hold for WHEN-clauses?

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Examples classified

(9)   *[cɛ **min** ye   muru san], n ye   **o**   ye*
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      'The man **who** bought the knife, I saw **him**.'

                    Bambara (Mande > Niger-Congo): [dem-based, definite]

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(10) *[**Akit**   szeret Mari], **azt**   meghívta a   buliba.*
      who:ACC.SG loves Mari   that:ACC.SG invited   the party:ILL
      '**Who(ever)** Mari loves, she invited to the party.'

                    Hungarian (Finno-Ugric > Uralic) : [wh-based, universal]

Two typological generalizations...

A *wh*-based correlative always has a universal reading; it may also have a definite reading, which may be morphologically marked.

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Def	8	2[1]
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[1]Tamil and Dargwa have multiple WH-correlative constructions

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Def	0	12
¬ Def	0	–

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...and a diachronic explanation 1

dem-based correlatives originate in parataxis (Givón 2009 and others):

(11) *That man bought the knife. I saw him.* →
      The man who bought the knife, I saw him.

Predicts that the definite reading is primary for *dem*-correlatives

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Predicts that the universal reading is historically primary for *wh*-correlatives

Diachronic paths

- Definite and universal readings coincide when
  - the NP with relativizer has unique reference
    - *what crop is best, sow that*

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- Hence, we argue, the marking asymmetries

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Hard to come up with a useful comparative concept or gram type!

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- Basic assumption (following Hartmann et al. 2014): if two instances of *when* tend to correspond to the same word across languages, those two instances are close in meaning

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- When we reduce dimensionality with multi-dimensional scaling, we get a two-dimensional semantic map
- For more details on the methods, go to our talk at 11:30!

Raw semantic map of *when*
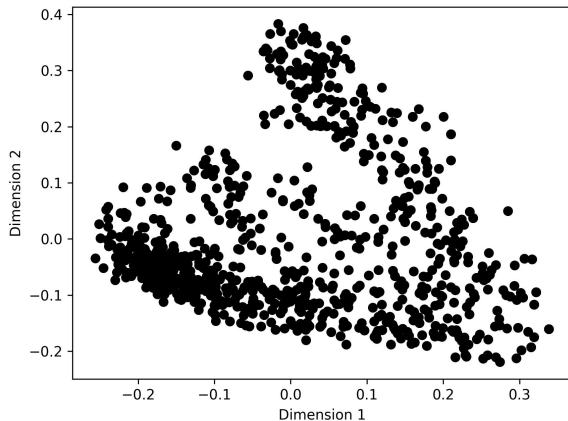
Using labels from German

German (Indo-European, Eurasia)
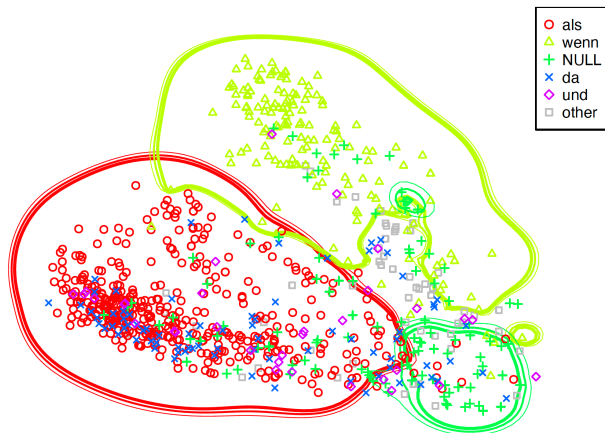
Levels drawn at 29-32-35%
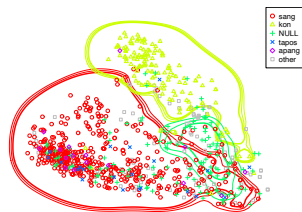
Sranan Tongo (Indo-European, South America)
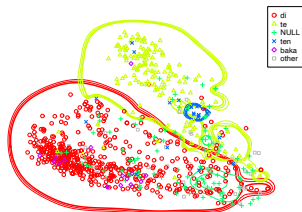
Ticuna (Ticuna-Yuri, South America)
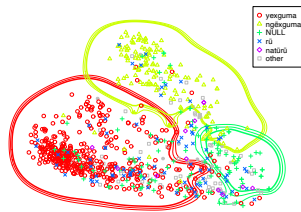
Hiligaynon (Austronesian, Papunesia)
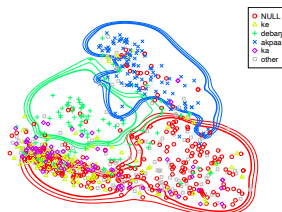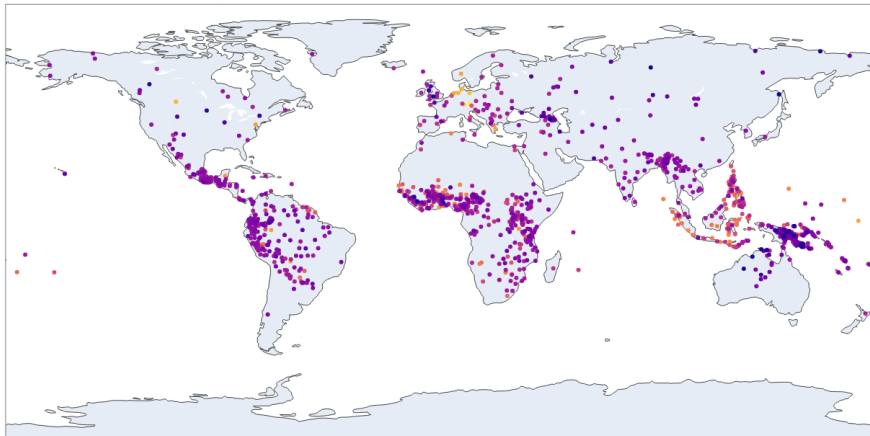
Delo (Atlantic-Congo, Africa)

Precision and recall for *wenn*
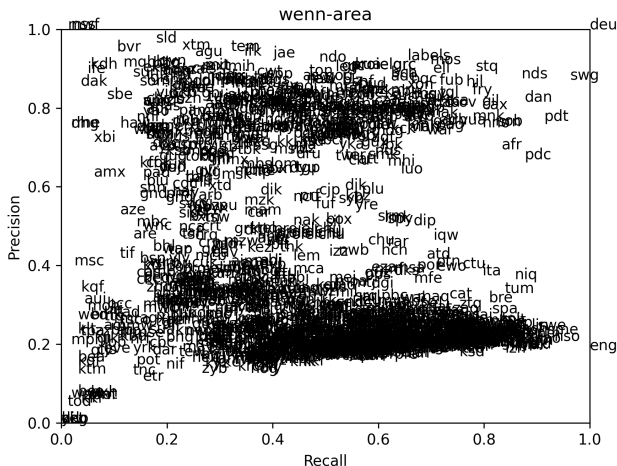
Universal WHEN

Connecting RCs and WHEN

- Widespread definite/universal meaning distinction in WHEN-clauses
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- Widespread definite/universal meaning distinction in WHEN-clauses
- In correlatives, the distinction is morphologically motivated
- Also in WHEN-clauses?
- The generalization of Belyaev & Haug (2020) applied to temporal clauses:
  1. If the subordinator is based on an indefinite/interrogative stem, it can always express universal WHEN; and it may also express definite WHEN, which may require special marking
  2. If the subordinator is based on a demonstrative stem, it can always express definite WHEN; and it may also express universal WHEN, which may (must?) require special marking

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när is identical to the interrogative and has the universal reading

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- Most languages won't have WHEN-clauses related to relatives at all

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  - beyond Indo-European, we often lack information about the etymology of the critical elements and of the definite/universal distinction
  - instead, a data-driven approach based on parallel corpora

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- But *can* express definite WHEN (cf. the German)
- Part of the bigger picture, but will be ignored here

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- Also temporal adverbial clauses, as we see directly e.g. in Vedic
- Connection WHEN/relative stem also in languages without correlatives
- But the relative stem varies! Both *dem-* (*so/to* or *yo-*) and k^w- are found.

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- Greek has a very well developed "indefinite construction", which requires the modal particle *an* and the subjunctive
- Vedic also tends to use the subjunctive in universal contexts (Hettrich, 1988, 217,351ff.), though the habitual present is also an option

WHEN-clauses in Greek and Vedic

- Both Greek and Vedic form their WHEN-subjunction from the *dem*-stem **ye/o-*: *hote* and *yadā́*
- Greek has a very well developed "indefinite construction", which requires the modal particle *an* and the subjunctive
- Vedic also tends to use the subjunctive in universal contexts (Hettrich, 1988, 217,351ff.), though the habitual present is also an option
- This is the exact same pattern as we see in Vedic and Homeric correlative clauses, which have an definite reading and require special morphology to get the universal reading

Definite WHEN in Ancient Greek

(17)   *o-wi-de*   *pu2-ke-qi-ri*   *o-te*   *wa-na-ka*
        hōs-wide   pu2-ke-qi-ri   hote   wanax
        thus-saw   Phugegwrīns(?).NOM   when   king.NOM
        te-ke   *au-ke-wa*   *da-mo-ko-ro*
        tʰeke   au-ke-wa   da-mo-ko-ro
        appointed.AOR.IND   Augēwās(?).ACC   dāmokoros(?).ACC

        'Thus witnessed Phugegwrīns when the king appointed Augēwās as *dāmokoros*' (PY Ta711)

Universal WHEN in Ancient Greek

The universal reading requires the modal particle *an* plus the subjunctive in

(18) *tòn   d'   oú pote kúmata   leípei*
      that.ACC PTC not ever waves.NOM.PL leave.PRES.3S
      pantoíōn   anémōn,   hot' àn   éntʰ ē̄ enʰa génōntai
      mainfold.GEN.PL winds.GEN.PL, when modal here or here become
      'that one the waves of all kinds of winds never leave, when they
      arise here or there' (Iliad 2.397)

The further development

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- Lexicalized distinction *hóte* vs. *hótan*, detectible in our semantic map
- Starting in Hellenistic times, *hótan* replaces *hóte* even in single past event contexts
- However, the archaizing Modern Greek in our Bible translation preserves the distinction

Latin

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- It has both definite and universal readings, without special marking
- The Sabellic equivalent *pún* is almost only universal
- In sum, the picture for WHEN-clauses in Vedic, Greek and Latin is similar to that of correlatives
  - Vedic and Greek has a *dem*-based stem and require special marking for the universal reading
  - Latin has a k^w-based stem and does not require special marking for either reading

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- Has developed a use as a subordinator and as an indefinite ('somewhen') within Latin
- It is predominantly but not exclusively universal in early Latin (Pinkster, 2021, 249)
- Rare in Latin post-Plautus, but resurfaces in Romance, now with both universal and definite readings

Hittite

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- In Middle and New Hittite *mān* develops into conditional 'if'
- For WHEN, we find *maḫḫan* and *kuwapi*
- Interestingly, Daues (2012) shows that *kuwapi* is the subordinator of choice used in generic temporal clauses with a conditional nuance (although it can also be used with past events)

Slavic

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- Delbrück pointed to the crucial role of the indefinite use for this development in the nominal domain
- Also for the temporal subordinator?
- Would predict a predilection for universal WHEN in the earlier stages of replacement, but I am not aware of studies of this

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- Clear evidence for the priority of universal WHEN

Old Irish

In Old Irish we find "when" expressed with the word for time (*tan*) plus a nasalizing relative clause

McQuillan 2002, 225

"in non-specific contexts, 'when' clauses approach the force of the type of indefinite concessive or conditional that was discussed in both Chapters 5 and 6. Therefore, it may be possible to subsume these various constructions, along with the subjunctive in relative clauses, under some more general heading such as 'indefinite' or 'non-specific reference'.

The Celtic relative forms likely involve the demonstrative stem *yo-* (Fortson, 2011, 277), so they fall under the same pattern as Greek and Vedic

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- Yamakawa (1969); Wårvik (1995) show that the *wh*-word takes over in universal contexts, before definite contexts, where *þa* is maintained longer and also competes with *as*
- Basically the story is the same in German, except the *wh*-word never generalized to definite contexts

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  - *hwonne* actually leads the way in Old English according to Mitchell (1985)

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- No good way to identify *dem*-based subordinators
- But for *wh*-ones:
    - based on interrogative stem → corresponds to *wann*

The interrogative/subordinator ambiguity

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Indo-European	47	Artificial Language	1	Sino-Tibetan	12
Sino-Tibetan	19	Uralic	1	Atlantic-Congo	7
Austronesian	14			Others	21
Others	21				
$t = 1$		$t = 14$		$t = 7$	

Exploring the distribution

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- The kind of numbers we would like to see, but …
- 7 of the 21 critical languages are Indo-European
- Not always clear that we pick the best *wenn*-equivalent
- But some convincing cases, e.g. Koyraboro Senni

Koyraboro Senni, Songhay, Mali


Koyraboro Senni Songhai (Songhay, Africa)
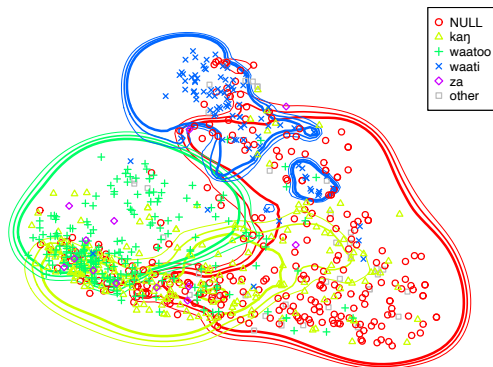
A counter-example

- Our data suggests one-counter example, the Spanish-based creole Chavacano (Philipines):
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  - *si* and *al* are used for universal WHEN
- Maybe not a case of an interrogative grammaticalizing into a subordinator but rather the creole recruiting words from the lexifier language to express distinctions that are salient in the substrate languages?
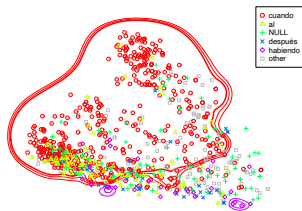
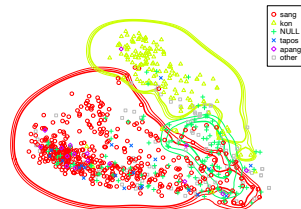Chavacano (Indo-European, Papunesia)
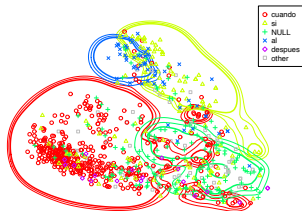
Tagalog (Austronesian, Papunesia)
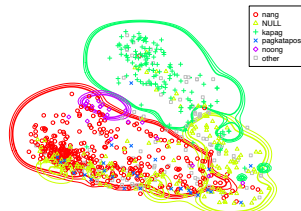
Spanish (Indo-European, Eurasia)

Hiligaynon (Austronesian, Papunesia)

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- *dem*-subordinators also require much more linguistic work
- Historical facts (etymology) are especially impenetrable for the computational methods
- Also, we should have a better way of constructing interpretable concepts without resorting to single, arbitrary languages
- Token-based typology is still useful for discovery and tentative generalizations!

A neglected distinction

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- Are there languages where the existential/universal contrast is made in the future tense, or is this always expressed by universal WHEN?

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Sranan Tongo, English-based creole (Suriname)

Sranan Tongo (Indo-European, South America)

Levels drawn at 29-32-35%
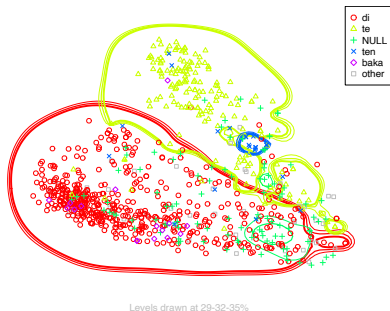
- Semantic map similar to German
  - *di* similar to German *als*
  - *te* to *wenn*
- Old Sranan in addition has *datem*

Early Sranan temporal clauses

- *di(si)* is from English *this*
- Grammaticalized as a clearly *dem*-based relativizer, possibly in correlative structures (Bruyn, 1995, 185)

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- Extended to the temporal domain, but only definite contexts
- Universal WHEN is *te*, which is tantalizingly similar to the interrogative *(o)ten*, but not related according to Bruyn
- Still, a clear case of a relativizer turned temporal subordinator that is based on a demonstrative stem and only has a definite reading
- The literature reports a new trend of creating relativizers from interrogatives in Sranan, though not (yet?) for time