

Alternatives and jurisdiction in predication¹

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Abstract. While many predicates can compose consistently (e.g. *This dog is happy*), some can only compose via conjunctive material like additive particles (e.g. *This comedy is #(also) a tragedy*). This paper asks what relation must exist between predicates for them to fall in the latter category. In previous work, I suggested that predicates require *also* if they come from the same conceptual taxonomy. In the present paper, I show that another factor is at play, namely whether two predicates contribute the same kind of information ('have the same jurisdiction') in a given sentence. In particular, same-taxonomy predicates stop requiring *also* when they are interpreted with a different jurisdiction. From the observation that jurisdiction is pertinent to whether *also* is required, I suggest that jurisdictional identity is in fact the only factor in whether two expressions require an additive; bringing in the notion of taxonomic co-membership is superfluous.

Keywords: predicates, exhaustivity, alternatives, additive particles.

1. Introduction

Some (1a) but not all (1b) predicates require an additive like *also* to both be predicated of the same individual, or 'co-predicated' (Paillé 2020):

- (1) a. Some comedies are #(also) tragedies.
- b. Some men are (??also) politicians.

In prior work (Paillé 2020), I have taken (1) to show that the meaning of predicates like *comedy* and *tragedy* involves exhaustification, modelled through the Exh(aust) operator of Chierchia et al. (2012). Additive particles like *also* are able to weaken this exhaustification (Bade 2016), so that *comedy* and *tragedy* no longer exclude one another when *also* is present.

The question asked in the present paper is what relation must hold between two predicates for them to require *also*—in other words, to be alternatives for this exhaustification effect. In Paillé 2020, I suggested that predicates are alternatives (for this particular effect) if they come from the same conceptual taxonomy, such as the taxonomy of genres for (1a). The current paper suggests a different way to understand the data.

The argumentation begins from the observation that there is context-sensitivity in whether two predicates require *also*. This can be seen with artefactual predicates, which can refer to either both the form and function of an individual, only its form, or only its function. In (2a), *shirt* and *hat* both describe both the form and function of the individual, and a contradiction results without *also*; in (2b), *shirt* describes the individual's form and *hat* its function.

- (2) a. This shirt is #(also) a hat.
- b. This shirt is {a good hat, my hat}.

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The notion of taxonomy cannot by itself distinguish the sentences in (2); taxonomies must at the very least be enriched with another notion, namely the kind of information provided by a predicate in a given sentence. I will refer to this as the JURISDICTION of a predicate—the reach of the predicate’s contribution of meaning to a particular sentence. The jurisdiction of *shirt* in (2a) is FORM and FUNCTION, but it is only FORM in (2b), for instance.

Since jurisdiction is apparently at play in determining whether two predicates require *also* to be co-predicated, a natural step is to question whether taxonomic co-membership is really at play too. I will show that, once we add in the notion of jurisdiction, there is no motivation left for taking taxonomic co-membership to be a factor in determining whether two predicates require *also*. Jurisdictional identity can be taken to be the only factor.

This paper is organized as follows. In section 2, I spell out a theory of (1a) based in exhaustification, putting aside the question of what determines Exh’s alternatives. Then, in section 3, I discuss the proposal from Paillé 2020, according to which alternativehood is determined by taxonomic co-membership. Section 4 turns to the context-sensitivity of certain same-taxonomy predicates like the garments/artefacts in (2), and introduces the notion of jurisdiction as a factor in determining whether predicates require *also*. Section 5 asks whether the notion of taxonomy should still be kept in addition to jurisdiction; I show there is no reason to do so.

2. ‘Controlled exhaustification’ in predication

As already seen in (1), some (3a) but not all (3b) predicates are incompatible in basic sentences.

- (3) a. #This fork is a spoon.
b. This fork is a gift.

The naive way to understand (3a) is as showing that the extensions of the predicates *fork* and *spoon* have an empty intersection. Put a bit differently, the concepts FORK and SPOON are mutually exclusive. This is in fact predicted by certain theories in cognitive science, such as Gärdenfors’ (2000) geometric approach to concepts, according to which conceptual domains are necessarily partitioned.

However, there are reasons to doubt this hypothesis. In particular, as seen in the introduction, (3a) belongs to a class of examples where contradictions that are intuitively due to the meaning of two predicates can be lifted by additives like *also*:²

- (4) a. This fork is #(also) a spoon.
b. This comedy is #(also) a tragedy.
c. The white flag is #(also) green.
d. This car is #(also) a boat.

These sentences could be uttered of a spork, a tragicomedy, a white and green flag, and a convertible vehicle. But, curiously, they all require *also*.

To be sure, *also* is not able to remove actual incompatibility between predicates. Contradic-

²The additivity in (4) is meant to be understood as *clause-internal*; *also* is not anaphoric to prior discourse material (cf. Kripke 1990), but to the predicate in the subject of the very clause it occurs in.

Alternatives and jurisdiction in predication

tions which are truly the result of conceptual incompatibility remain contradictory even in the presence of *also*:

- (5) a. #This triangle is (also) a square.
b. #A platypus is a duck that is (also) a beaver.

Compare in particular (5b) with (6), where we observe that the morpheme *-ish*, unlike *also*, does manage to broaden predicates' meanings.

- (6) A platypus is a duck-ish, beaver-ish animal.

Since additives are not capable of weakening predicates' meanings, (4) must show that predicates like *fork* and *spoon* are in fact lexically/conceptually compatible.

What, then, causes such predicates to be intuited as inconsistent in basic sentences, and how does *also* remove this contradictory meaning? In previous work (Paillé 2020, 2021), I have suggested that lexically compatible predicates are intuited as incompatible due to a particular kind of exhaustification effect. Predicates like those in (4) are strengthened so as to exclude one another, making them intuited as incompatible in most sentences.

To start with, if lexically consistent material is intuited as inconsistent, this is descriptively a strengthening effect, and postulating an exclusion process from a domain-general exhaustification effect—to be modelled through the Exh(aust) operator of Chierchia et al. (2012)—should be the default hypothesis. But there is more to the argument that Exh is at play; specifically, additive particles have independently been argued to interact with Exh. First consider the fact that additive particles are often obligatory in discourse:

- (7) Jade wrote a paper. Ahmed #(also) wrote a paper.

Here we have an additivity effect that has nothing to do with the meaning of predicates, letting us observe additives' behaviour independently of our research question. Why might the additive be obligatory in (7)? Some work (Krifka 1998, Sæbø 2004, Bade 2016, Aravind and Hackl 2017, Paillé 2022a) has claimed that, when additives are obligatory, it is because an obligatory exhaustification process would otherwise create problems; Bade (2016) specifically defends this view against an alternative based in Heim's (1991) 'Maximize Presupposition' maxim. In (7), the problem arising without *also* is that the second sentence would mean that *only* Ahmed wrote a paper, due to exhaustification (8). In (8), *Ahmed* is focused and bears *Jade* as an alternative due to Ahmed and Jade being contrastive topics (Krifka 1998).

- (8) $\text{Exh}_{\text{ALT}} [\text{Ahmed}_F \text{ wrote a paper}] = 1$ iff $A. \text{ wrote a paper} \wedge J. \text{ did not write a paper}$.

Of course, this raises the question of how *also* can fix the problematic meaning in (8). Paillé (2022a) suggests that this occurs through restriction of the Exh operators' alternatives in both sentences (cf. Aravind and Hackl 2017):

- (9) $\text{Exh}_{\text{ALT-1}} [\text{Jade}_F \text{ wrote a paper}]$. $\text{Exh}_{\text{ALT-2}} [\text{Ahmed}_F \text{ also wrote a paper}]$.
a. ALT-1 = {~~Ahmed~~ w.a.p., Jade w.a.p., Ben w.a.p.}
b. ALT-2 = {Ahmed w.a.p., ~~Jade~~ w.a.p., Ben w.a.p.}

Exh is present but weakened, avoiding a contradiction.

Since *also* is independently known to interact with exhaustification by weakening it, it is

appealing to claim that the on-again-off-again incompatibility of predicates like *comedy* and *tragedy* is due to exhaustification. Thus, I take (3a) to have the LF in (10) (assuming a type-flexible Exh).

(10) This $[_{NP} \text{Exh}_{ALT} \text{ fork}]$ is a $[_{NP} \text{Exh}_{ALT} \text{ spoon}]$.

Exh needs a set of alternatives (ALT). For the time being, let's take a small leap of faith and assume that ALT includes at least forks, spoons, and knives. With this assumption, the meaning obtained from (10) is provided in (11).

(11) $\llbracket(10)\rrbracket = 1$ iff this $\begin{pmatrix} \text{fork \&} \\ \text{not spoon \&} \\ \text{not knife \&} \\ \text{not \dots} \end{pmatrix}$ is a $\begin{pmatrix} \text{spoon \&} \\ \text{not fork \&} \\ \text{not knife \&} \\ \text{not \dots} \end{pmatrix} \Rightarrow$ contradiction

In this way, lexically compatible predicates are made incompatible if they are alternatives for Exh.

But this is not a typical exhaustivity effect; it has the following twin properties (Paillé 2020). First, it is obligatory; otherwise a non-contradictory parse of (3a) would be available, and (of course) preferred. The idea that Exh is sometimes obligatory is not new (e.g. Magri 2009, Chierchia 2013, Bade 2016). But Exh in (10)/(11) has another property, namely that it is necessarily computed locally to the alternative-triggering expression (*fork*, *spoon*). If it was possible for Exh to be non-local (12), it would not create a contradiction, because its prejacent would entail that the subject is in the intersection of *fork* and *spoon*.³

(12) $\llbracket\text{Exh}_{ALT} [\text{this fork is a spoon}]\rrbracket$
 $= 1$ iff this fork is a spoon \wedge this fork is not a knife \wedge ...
 \nRightarrow contradiction

See Paillé 2021 and 2022b for evidence that the locality constraint is observable generally with such predicates (i.e. even in non-contradictory sentences containing such predicates), rather than only being an ad hoc way to obtain contradictions where they are observed.

I refer to exhaustivity effects where Exh is both obligatory with and necessarily local to the alternative-triggering expression as ‘controlled’ exhaustivity (Paillé 2020); Exh is ‘controlled’ by the expression which requires it and dictates where it appears. Exh’s controlledness gives its effect a lexical-like flavour, since it always co-occurs with the expression it exhaustifies and cannot be scopally detached from it.

With this much in hand, we can now update this paper’s research question. Recall that the original question was framed in the following way: what kind of relation must hold between two predicates for them to require *also*? We can now ask this in a slightly sharper way: what relation must exist between two predicates for them to be alternatives for controlled Exh? In other words, what is the membership of the two alternative sets (ALT) in (10) and (11)?

³In (12), I only show *spoon* as triggering alternatives, but this might be incorrect. If *fork* bears alternatives too, there is another problem with (12): the global Exh will create entailments about other referents altogether by excluding alternatives like ‘This knife is a spoon.’

3. Alternatives from conceptual taxonomies

Since predicates like *fork* or *comedy* are intuited as strong due to controlled Exh, the particular nature of these predicates' strong meanings depends entirely on the nature of the set of alternatives taken by Exh. In this section, I summarise the claim from my previous work (Paillé 2020), where I suggested that the alternatives for Exh are the predicates from a given conceptual taxonomy. These taxonomies include the following for the sentences in (4):

- (13) a. **UTENSILS:** {*fork, spoon, knife, ...*}
 b. **GENRES:** {*comedy, tragedy, epic, ...*}
 c. **COLOURS:** {*green, white, red, ...*}
 d. **VEHICLES:** {*car, boat, plane, ...*}

(14) follows because *fork* and *spoon* are taken from the same taxonomy, and are therefore alternatives for controlled Exh; in contrast, *fork* and *green* are not part of the same taxonomy. They are exhaustified so as to exclude some other predicates (e.g. *fork* excludes *spoon* and *green* excludes *white*), but not each other.

- (14) a. #This fork is a spoon.
 b. This fork is green.

The taxonomies in (13) are somewhat reminiscent of Horn scales (Horn 1972), but without logical relations between the predicates—not even mutual exclusivity, since the predicates, on the theory laid out in section 2, are lexically compatible.

The taxonomies one can infer from obligatory clause-internal additivity go much beyond those in (13). (15) provides some additional examples of predicates requiring *also*, and (on the right-hand side) suggests the taxonomy that these predicates may be taken from. Many of the examples (and taxonomies) are repeated from Paillé 2020.

- (15) a. Some live-action movies are #(also) animated. **(FILM TYPE)**
 b. (i) Some snowshoes are #(also) skis. **(GEAR)**
 (ii) There's a new kind of bicycle that is #(also) a skateboard.
 c. Some federal responsibilities are #(also) provincial. **(JURISDICTIONS)**
 d. Some residential neighbourhoods are #(also) industrial. **(ZONING)**
 e. SCENARIO: *Apple starts selling computers with two operating systems.*
 Now, some Macs are #(also) PCs. **(BRANDS)**
 f. He made a sling that is #(also) a bandaid. **(MEDICAL EQUIPMENT)**
 g. Futons are couches that are #(also) beds. **(FURNITURE)**
 h. Cyborgs are humans that are #(also) robots. **(HUMANOID)**
 i. Are any derivational morphemes #(also) inflectional? **(MORPHOLOGY)**
 j. Some left-wing ideas are #(also) right-wing. **(POLITICS)**

Of course, to argue that taxonomies feed alternatives for controlled Exh, we must not just observe that same-taxonomy predicates require *also*, but also that different-taxonomy predicates do *not* require *also*. We have already done this briefly with (14), but to cover more ground, let's try to mix and match predicates from different taxonomies identified in (13) and (15). At first glance, the prediction is borne out; the following different-taxonomies predications are all consistent without requiring *also*:

- (16) a. Some live-action movies are comedies. (FILM TYPE + GENRES)
 b. The train is a provincial responsibility. (VEHICLES + JURISDICTIONS)
 c. Some industrial areas are a federal responsibility. (ZONING + JURISDICTIONS)
 d. This robot is a car. (HUMANOID + VEHICLES)

We return to this point in section 5.

4. Jurisdictions

In this section, I introduce the notion of jurisdiction as a necessary component in understanding when predicates require *also* in a given sentence—possibly as an addition to taxonomic co-membership (a question we return to in section 5). Indeed, I will show that two same-taxonomy predicates can be co-predicated without requiring *also* if each predicate has a different jurisdiction in a given sentence.

This section is organized as follows. I first show in section 4.1 that predicates normally requiring *also* no longer do so when, in a given sentence, they do not contribute all the information that they could potentially contribute, given their lexical–conceptual meaning. To capture this, I suggest in section 4.2 that predicates take abstract jurisdictional arguments in sentences; these arguments must match some part of the predicate’s lexical entry. I distinguish between ‘inner jurisdictions,’ which are the set of jurisdictions compatible with the predicate’s lexical–conceptual meaning (essentially the ‘qualia’ of Pustejovsky (1995)), and ‘outer jurisdiction,’ which is the predicate’s jurisdiction as intuited in a given sentence. Predicates only need *also* when they share an outer jurisdiction. I then show in section 4.3 that much of the data pertaining to which pairs of predicates require *also* can be explained from the notion of jurisdiction alone, without reference to taxonomies. This sets the stage for section 5, which asks whether the notion of taxonomic membership from section 3 is still needed at all.

4.1. Different-jurisdiction predications: no additive necessary

Let’s begin with the general observation that many predicates that require *also* in basic sentences do not always require it; they only require it on their most literal interpretations. Many complicating factors can make them compatible without *also*, such as being true in different worlds or at different times:⁴

- (17) a. SCENARIO: *We are setting up a play and decide to represent a red couch with a blue one.*
 The blue couch is red.
 b. SCENARIO: *A formerly fully white shirt emerges from the wash fully green.*
 The white shirt is green.

This is the kind of complication in the data that one should put aside to study the lexical meaning of predicates and their interaction with exhaustification. It is true that modality and tense semantics make things appear complicated, but the data can be understood from facts of language not specific to predicates. One could model (17) through world and tense pronouns, for instance; in (18), w_0 is the real world and t_0 the time of utterance.

⁴I thank Michael Wagner for an example similar to (17a) and the audience at WCCFL 38 at UBC for (17b).

Alternatives and jurisdiction in predication

- (18) a. The [blue w_0] couch is [red w_1].
b. The [white t_1] shirt is [green t_0].

Crucially, the predicates in (18) are still intuited as strong—the colour terms are interpreted as modifying *all* parts of their argument, despite being lexically existential (Paillé 2021). That is, the colour terms in (18) are exhaustified, with all colour terms as alternatives; the predicates are strong (incompatible) without resulting in a sentential contradiction due to holding at different worlds or times.

Now consider something that might initially appear to be a similar kind of superficial complication. Many artefactual predicates can have weak meanings due to only referring to the function of their subject, but not its form, or to its form but not its function (19a). In non-realist contexts, something similar goes for non-artefactual predicates too, which can refer to an individual's ongoing 'inner essence' (but not its current outer form) or its outer form (but not its inner essence); (19b) could be said of a donkey that has been magically transformed into a horse.

- (19) a. This shirt is a good hat.
 \approx it has the FORM of a shirt, the FUNCTION of a hat
b. This donkey is a horse. *(cartoon/magical setting)*
 \approx it has the FORM of a donkey, the ESSENCE of a horse

Focusing on (19a), the effect is not only found with *good*; many definites, including possessives, also bring out the compatibility of the predicates:

- (20) This shirt is my hat.
 \approx it has the FORM of a shirt, but I treat it as having the FUNCTION of a hat

Crucially, the predicates in (19)/(20) do need *also* on their literal readings:⁵

- (21) This shirt is #(also) a hat.

The problem with thinking of (19) as a mere complication is that, while (17) can be understood in terms of facts of language not specific to predicates (tense, modality), this is not clearly the case with (19). The effects in (17) are not directly relevant to a theory of the strength of predicates, but (19) is, because it is a case where we observe weaker meanings without an obvious explanation that is domain-general (i.e. not specific to predicates).

To state the obvious, what one wants to capture is that *shirt* and *hat* are both contributing information about form and function in (21), while only about one or the other in (19a). Apparently, in different sentences, the same predicate can have a broader or narrower scope in its ability to contribute information to a state/event. Call this scope the predicate's JURISDICTION. In (21), *shirt* and *hat* have the same jurisdiction (form and function), but they do not in (19a). Specifically, the extension of *hat* in (19a) is the set of objects that have the *function* of a hat (but not necessarily the *form* of a hat), including the shirt the speaker considers using as a hat; the extension of *hat* in (21) is the set of objects that have the *form and function* of a hat.

⁵At least, this is the case for *shirt* and *hat*. With *donkey* and *horse*, the predicates are lexically/conceptually incompatible, so *also* is of no help by itself.

4.2. Inner and outer jurisdictions

We have just seen that two predicates whose lexical meaning is such that they can share a jurisdiction in a given sentence only actually require *also* in sentences where their actually-intuited jurisdiction(s) is the same. To better understand this, I now introduce a distinction between inner jurisdictions (the jurisdictions compatible with a predicate’s lexical meaning) and outer jurisdictions (the jurisdiction actually intuited in a given sentence).⁶

Let’s start with the actually-intuited jurisdiction of a predicate. What we want to capture, of course, is that a predicate can be intuited as contributing different kinds of information depending on the sentence it is in. A simple way to do this is to claim that predicates take abstract arguments specifying what kind of information they are contributing about their subject—somewhat like degree predicates like *tall* take a degree argument. In (22), ‘*j*’ is for *jurisdiction*; these are abstract categories of meaning like FORM, FUNCTION, and so on, which I will write out as subscripts on *j* (e.g. j_{FORM}) when I refer to the syntactically present jurisdictional argument of a predicate.

- (22) a. $\llbracket \text{shirt} \rrbracket = \lambda j. \lambda x. x \in \{y : y \text{ has the } j \text{ of a shirt}\}$.
 b. $\llbracket \text{hat} \rrbracket = \lambda j. \lambda x. x \in \{y : y \text{ has the } j \text{ of a hat}\}$.

Call the actually intuited jurisdiction of a predicate in a given sentence (as determined, in the present formalism, by the predicate’s *j* argument) its OUTER JURISDICTION.

With this in our pocket, we can capture that two predicates can be alternatives for controlled Exh without requiring *also*, if they have different *j* arguments (say, j_{FORM} and j_{FUNCTION}). Consider again (23a). It has the LF in (23b), where the lexical predicates *shirt* and *hat* both take a different jurisdictional argument, viz. j_{FORM} and j_{FUNCTION} . The controlled Exh operators take the resulting complex predicates as their argument.

- (23) a. This shirt is my hat.
 b. This $[\text{Exh}_{\text{ALT-1}} [j_{\text{FORM}} \text{ shirt}]]$ is my $[\text{Exh}_{\text{ALT-2}} [j_{\text{FUNCTION}} \text{ hat}]]$.

In expressions of the form ‘*j P*’ (e.g. ‘ $j_{\text{FORM}} \text{ shirt}$ ’), call *P* the PREDICATIONAL NUCLEUS. The Exh operators’ alternatives in (23) are as in (24a), where the jurisdictional argument stays fixed and the predicational nucleus is replaced by other nuclei (which, on the proposal from section 3, must be taxonomic peers of the original nucleus; we return to this in section 5). That is, (24b) is *not* a possible set of alternatives.

- (24) a. (i) $\text{ALT-1} = \{j_{\text{FORM}} \text{ shirt}, j_{\text{FORM}} \text{ hat}, j_{\text{FORM}} \text{ pillow}, \dots\}$
 (ii) $\text{ALT-2} = \{j_{\text{FUNCTION}} \text{ shirt}, j_{\text{FUNCTION}} \text{ hat}, j_{\text{FUNCTION}} \text{ pillow}, \dots\}$
 b. $\text{ALT-1} \neq \{j_{\text{FORM}} \text{ shirt}, j_{\text{FUNCTION}} \text{ hat}, \dots\}$

On this view, the following meanings are obtained by composing the lexical predicates first with their jurisdictional arguments, then with their controlled Exh operators:

⁶I thank Aron Hirsch for pointing out to me that previous version of this work (including the version presented at *Sinn und Bedeutung* 27) used the term ‘jurisdiction’ in two related but different ways.

Alternatives and jurisdiction in predication

- (25) a. (i) $\llbracket j_{\text{FORM}} \text{ shirt} \rrbracket = \lambda x. x \in \{y : y \text{ has the form of a shirt}\}.$
 (ii) $\llbracket \text{Exh}_{\text{ALT}} [j_{\text{FORM}} \text{ shirt}] \rrbracket = \lambda x. \begin{cases} x \in \{y : y \text{ has the form of a shirt}\} \wedge \\ x \notin \{y : y \text{ has the form of a hat}\} \wedge \\ x \notin \{y : y \text{ has the form of a pillow}\} \wedge \\ x \notin \dots \end{cases}$
 b. (i) $\llbracket j_{\text{FUNCTION}} \text{ hat} \rrbracket = \lambda x. x \in \{y : y \text{ has the function of a hat}\}.$
 (ii) $\llbracket \text{Exh}_{\text{ALT}} [j_{\text{FUNCTION}} \text{ hat}] \rrbracket = \lambda x. \begin{cases} x \in \{y : y \text{ has the function of a hat}\} \wedge \\ x \notin \{y : y \text{ has the function of a shirt}\} \wedge \\ x \notin \{y : y \text{ has the function of a pillow}\} \wedge \\ x \notin \dots \end{cases}$

No contradiction results in (23b), which co-predicates the complex predicates in (25a-ii) and (25b-ii): an individual can be in the intersection of the set of things with the form of a shirt (but not of a hat), and the set of things with the function of a hat (but not of a shirt). At least, this is the case if the notion of ‘function’ is understood as the real-world function of an object rather than all the possible functions it could in principle have, in which case virtually nothing with the form of a shirt would fall in the set of things that do not have the function of a shirt.⁷ In sum, as long as ‘ $j_{\text{FORM}} \text{ shirt}$ ’ and ‘ $j_{\text{FUNCTION}} \text{ hat}$ ’ are not alternatives for either of the Exh operators, no contradiction obtains even following exhaustification.

Outer jurisdictions are non-lexical by nature. But they must be lexically constrained; predicates cannot be assigned any outer jurisdiction. For example, *tree* in (26) cannot refer to the set of things that have the *length* of a tree—despite LENGTH presumably being a jurisdiction due to the existence of lexical items like *long* and *short*.

- (26) #This car is a tree.

As such, while a particular predicate can vary in its jurisdiction sentence by sentence, the lexicon imposes limits on its possible jurisdictions. Call the set of jurisdictions that are compatible with a predicate’s lexical meaning its INNER JURISDICTION(S). This notion coincides with Pustejovsky’s (1995) ‘qualia structure,’ whereby particular lexical items have their particular meaning specified for various general categories of meaning (e.g. form and function) separately. What I suggest about outer and inner jurisdictions is simply that (by some mechanism) the jurisdictional argument j taken by a predicate must be matched by something in its lexical entry.

On this view, the predicate *tree* cannot have the jurisdiction LENGTH because the predicate *tree* does not come pre-specified with any information about length. To give another example, the predicate *waterfall* could not have the outer jurisdiction FUNCTION because waterfalls are non-artefactual and do not exist in order to serve a function. We may have world knowledge about functions they happen to serve (oxygenating water, for instance) but unlike artefacts, these functions are incidental rather than being part of what causes them to be waterfalls. As

⁷One could reasonably disagree with this, in which case the fact that (23a) is non-contradictory would serve as evidence that *shirt* and *hat* are simply not alternatives at all in (23a). This is compatible with the basic claim of this paper that jurisdiction is at play in determining whether predicates require *also*, but (on this view) whether two predicates are alternatives would have to somehow be computed from the jurisdiction of a predicate in an actual sentence (its outer jurisdiction), in a way that isn’t clear to me. Something would have to prevent ‘ $j_{\text{FORM}} \text{ hat}$ ’ from being an alternative to ‘ $j_{\text{FORM}} \text{ shirt}$ ’ as a result of ‘ $j_{\text{FUNCTION}} \text{ hat}$ ’ being asserted elsewhere in the sentence.

such, waterfalls' functions are not part of the lexical entry of *waterfall*: *waterfall* does not have FUNCTION as an inner jurisdiction.

4.3. Jurisdictions can explain some of the data previously covered by taxonomies

With this new understanding of the role of jurisdictions in predication, we can immediately explain the fact that many predicates are consistent (without *also*), without any reference to the notion of taxonomic co-membership. Consider the following examples, where two nouns (*mermaid* and *figure-skater*) or adjectives (*green* and *long*) are not intuited as mutually exclusive:

- (27) a. This mermaid is a figure-skater.
 b. The green table is long.

Recall the conclusion just reached from (26): a predicate P can only have a jurisdictional argument j (an outer jurisdiction) if it has a matching inner jurisdiction. Let's focus on (27b), assuming it has the following LF:

- (28) The $[\text{Exh}_{\text{ALT}} [j_{\text{COLOUR}} \text{green}]]$ table is $[\text{Exh}_{\text{ALT}} [j_{\text{LENGTH}} \text{long}]]$.

These predicates are immediately predicted not to have each other as alternatives (for the purposes of controlled Exh), without needing to appeal to taxonomic membership. Recall that alternatives for controlled Exh are created by keeping j constant and replacing the predicational nucleus with other predicates. For *green* in (27b)/(28), the alternatives are only well-formed if the predicational nucleus can take j_{COLOUR} as an argument—that is, if it has COLOUR as an inner jurisdiction. Thus, (29a) can be one of the alternatives of ' $j_{\text{COLOUR}} \text{green}$,' but (29b) cannot, simply because it is ill-formed; COLOUR is not an inner jurisdiction of the predicate *long*.

- (29) a. $j_{\text{COLOUR}} \text{blue}$
 b. $*j_{\text{COLOUR}} \text{long}$

Thus, beyond the well-formedness of alternatives, no constraint needs to determine that (29b) is not an alternative to ' $j_{\text{COLOUR}} \text{green}$ '; the non-alternativehood of *green* and *long* falls out for free from (29b) being ill-formed. Similar points hold for the nouns in (27a); *mermaid* has the FORM inner and outer jurisdictions, but *figure-skater* does not, since *figure-skater* can only contribute information about how an individual spends their time, not the nature of their form.

Of course, if one were to formalize outer jurisdictions differently from the j arguments I have been using, it is possible that two predicates like *green* and *long* would no longer lead to ill-formed alternatives. Specifically, a purely pragmatic approach to outer jurisdiction would not lead to the expectation that the predicates *green* and *long* would give rise to semantically ill-formed alternatives. Nonetheless, even on a pragmatic approach to outer jurisdiction, the more general point I am making stands: if sharing an outer jurisdiction is a *sine qua non* for two predicates to require *also*, then *green* and *long* are expected never to require it. The fact that they cannot have the same outer jurisdiction stands regardless of how outer jurisdiction is to be formalized.

4.4. Interim summary

In section 2, I claimed that predicates require *also* if they are alternatives for controlled Exh. In the present section, I gave a slightly different picture: predicates can *feed* complex alternatives

Alternatives and jurisdiction in predication

(‘ $j P$ ’) for controlled Exh without needing *also* if they are assigned a different outer jurisdiction in a given sentence. Once jurisdictions are taken seriously as a factor in whether a pair of predicates requires *also*, we find that at least some of the data pertaining to which pairs of predicates require *also* can be explained immediately from the notion of jurisdiction alone. We expect that the adjectives *green* and *long*, for instance, are not made mutually exclusive through a controlled Exh because they have different inner jurisdictions and therefore cannot feed well-formed alternatives for one another.

In principle, the claim from section 3 (that taxonomic co-membership is a necessity for two predicates to be alternatives) might still be correct. Or we might find that everything can be explained by jurisdictional (non-)identity alone. We now turn to seeing which one of these possibilities is correct.

5. No taxonomic constraint on predicates feeding alternatives for controlled Exh

We have seen that sharing an outer jurisdiction (and therefore necessarily also overlapping in inner jurisdictions) is a required condition for two predicates to require *also*. However, section 3 took a somewhat different notion, viz. taxonomic co-membership, to be at play. Is taxonomic co-membership a factor in addition to jurisdictional identity, or is it only the latter?

If taxonomic co-membership does have a role to play in determining alternatives for controlled Exh, the role of taxonomic co-membership would be to constrain the set of predicational nuclei feeding alternatives. In other words, once a predicate P has a jurisdictional argument j , the alternatives for controlled Exh are obtained by keeping j constant and replacing P not with *any* predicate with the right inner jurisdiction(s), but exclusively with its taxonomic peers (30). The sets in (30) are equivalent on the assumption that alternatives must be semantically well-formed; as discussed in section 4, $j Q$ is only well-formed if Q has j as an inner jurisdiction.

$$(30) \quad \text{ALT}(j P) = \{\lambda x. \llbracket j Q \rrbracket(x) : Q \text{ has } j \text{ as an inner jurisdiction} \wedge P \text{ and } Q \text{ are in the same taxonomy}\} \equiv \{\lambda x. \llbracket j Q \rrbracket(x) : P \text{ and } Q \text{ are in the same taxonomy}\}$$

On the other hand, it could also be that the notion of jurisdictional identity should in fact replace taxonomic co-membership entirely. On this view, alternatives would be all predicates that can consistently compose with the asserted jurisdictional argument j :

$$(31) \quad \text{ALT}(j P) = \{\lambda x. \llbracket j Q \rrbracket(x) : Q \text{ has } j \text{ as an inner jurisdiction}\} \equiv \{\lambda x. \llbracket j Q \rrbracket(x)\}$$

I will refer to (30) as the TAXONOMIC APPROACH and (31) as the JURISDICTIONAL APPROACH (of course, jurisdictions are actually at play in both hypotheses). The latter is simpler and therefore a default hypothesis. It is also less at odds with the discussion in section 3 than may appear: sisters in a taxonomy usually have the same inner jurisdictions, so jurisdictional identity will correspond to some degree with taxonomic co-membership. It may well be that section 3, in discussing the notion of taxonomic co-membership, was really discussing an epiphenomenon of jurisdictional identity.

Let’s start with a brief review of why the more complex (30) might be necessary. Many of the *different* taxonomies posited in section 3 (and Paillé 2020) involve predicates with the *same* inner jurisdiction(s). If the predicates from those different taxonomies do not require *also* when

they are co-predicated, that would be evidence in favour of the more complex (30). To see this, consider (32), repeated from (15f) and (15g). In section 3, I identified these pairs of predicates as coming from different taxonomies (therefore not requiring *also*, hypothetically) but all the relevant predicates have the same inner jurisdictions: FORM and FUNCTION.

- (32) a. He made a sling that is #(also) a bandaid. (MEDICAL EQUIPMENT)
 b. Futons are couches that are #(also) beds. (FURNITURE)

If it was correct to group *sling* and *bandaid* separately from *couch* and *bed*, then jurisdictional identity is not enough to describe the data, since it cannot tell these predicates apart; rather, reference to taxonomies is required.

I now show that, in fact, there is no empirical evidence in favour of (30); reference to taxonomies is not needed to describe the data. I therefore defend the view that all predicates that *can* feed alternatives for controlled Exh (due to having the right inner jurisdictions) *do* feed alternatives, without being constrained by taxonomic co-membership.

To start with, the taxonomies identified in section 3 are in many cases too narrow. I argued in that section—see the discussion of (16)—that different-taxonomy predicates do not require *also*, based on the taxonomies suggested in (13)/(15). However, this does not actually hold for all the taxonomies identified in (13)/(15); (33) co-predicates predicates from different taxonomies identified there, and *also* is required.

- (33) a. This couch is #(also) a car. (FURNITURE + VEHICLES)
 b. He made a sling that is #(also) a ski. (MEDICAL + GEAR)
 c. Now, some Macs are ??(also) skateboards. (BRANDS + GEAR)

If taxonomic co-membership really constrains which predicates can feed alternatives for controlled Exh, what we learn from (33) is that the two relevant predicates in each of these sentences must both come from the same taxonomy. A natural step, then, is to postulate a general ARTEFACTS taxonomy. Many of the rather specific taxonomies suggested in (13)/(15) would be viewed as particular branches of this ARTEFACTS taxonomy, including VEHICLES (13d), GEAR (15b), MEDICAL EQUIPMENT (15f), FURNITURE (15g), BRANDS (15e), and UTENSILS (13a).

Thus, the taxonomic approach to alternatives for controlled Exh predicts that any predicates with the FORM and FUNCTION inner jurisdictions will be alternatives to each other, *as long as they are artefacts*. It is not immediately clear that this is a substantial prediction, since it may be that all and only artefactual predicates have both the FORM and FUNCTION inner jurisdictions, in which case both the taxonomic and the simpler jurisdictional approaches make the same prediction for the alternatives of predicates with $\text{FORM} \oplus \text{FUNCTION}$ as their outer jurisdiction. However, on the assumption that the ARTEFACTS taxonomy is a stand-alone taxonomy rather than being part of an even larger taxonomy, we can in fact get a substantial prediction from the taxonomic approach. Specifically, there are many predicates that have FORM but not FUNCTION as inner jurisdictions (e.g. *buffalo*, *forest*, *human*, or *waterfall*; see the brief discussion of *waterfall* in section 4.2); call these (non-artefactual) form-denoting predicates. When such a predicate is asserted, it has FORM as its outer jurisdiction, of course (modulo (19b)-type examples). While it can never be that a non-artefactual form-denoting predicate is an alternative to an artefactual predicate with $\text{FORM} \oplus \text{FUNCTION}$ as its outer jurisdiction (because non-artefactual

Alternatives and jurisdiction in predication

predicates lack FUNCTION as an inner jurisdiction), it *could* in principle be (as far as jurisdictions and the well-formedness of alternatives is concerned) that an *artefactual* predicate is an alternative to a *non-artefactual* form-denoting predicate (because artefactual predicates *do* have FORM as an inner jurisdictions). But whether it is actually predicted that artefactual predicates should be alternatives to non-artefactual predicates depends on the theory of alternatives. The jurisdictional approach does indeed predict that artefactual predicates should be alternatives to non-artefactual form-denoting predicates; the taxonomic approach predicts that this should not be the case, because artefactual and non-artefactual predicates are not part of the same taxonomy.

More concretely, the jurisdictional approach predicts sentences like (34) to be contradictions without *also* as in (34a), because both the non-artefactual and the artefactual predicates have FORM as inner and outer jurisdictions (but see below on outer jurisdictions), while the taxonomic approach predicts that such sentences should be acceptable without needing *also* (34b).

- (34) a. The (non-artefact) is #(also) an (artefact).
 b. The (non-artefact) is (also) an (artefact).

This can only be tested if we manage to co-predicate a non-artefact and an artefact at all; in the real world, there are combinations of artefacts (e.g. sporks), but by the very nature of artefacts and non-artefacts, it is no *a priori* certainty that we could co-predicate artefactual and non-artefactual predicates (without getting into metaphor). As such, the predictions for (34) can only actually be tested if we find that it *is* possible to co-predicate an artefactual and a non-artefactual predicate; where the taxonomic and jurisdictional approaches differ in prediction is in whether or not *also* is required to do so.

There is another complication: the predictions for (34) only hold if we can ensure that the artefactual predicate has FORM or FORM \oplus FUNCTION as an outer jurisdiction, rather than just FUNCTION. In the latter case, *also* would immediately not be expected to be required, regardless of whether the artefactual and non-artefactual predicates are underlyingly alternatives. In principle, this complication should not be a problem: in at least the kinds of sentences looked at so far, it is only in certain environments that artefactual predicates can have FUNCTION (rather than FORM \oplus FUNCTION) as their outer jurisdiction:

- (35) This shirt is {my, a good, #a} hat.

It is not clear how strong or general this is, however. Nonetheless, to get started, we will try not to worry about cases where artefactual predicates have only the FUNCTION outer jurisdiction simply by avoiding expressions like *good* or *my* that make it salient.

To approach a sentence like (34) and see which theory makes the right prediction, let's start with (36), where *waterfall* is a non-artefactual form-denoting predicate with only FORM as an inner jurisdiction and *door* is an artefactual predicate with both FORM and FUNCTION as inner jurisdictions. Imagine there is a dwelling in a cave behind a waterfall, and one can only enter through the waterfall.

- (36) The waterfall is a door.

This is a perfectly good sentence, and it does not need *also*. At first glance, this looks in line with the prediction of the taxonomic approach (34b). But in fact, despite what I just

claimed about avoiding the FUNCTION jurisdiction of artefactual predicates, it seems that (36) has the artefactual predicate *door* only contributing information about function. Intuitively, the waterfall is a normal waterfall, rather than having any physical properties associated with doors, and its function is that of a door. As such, we must be more careful about the potential difficulties raised immediately above about the outer jurisdiction of the artefactual predicate. In (36), since *waterfall* has only FORM as its outer jurisdiction and *door* only has FUNCTION, the fact that (36) does not require *also* does not constitute evidence that *waterfall* and *door* are not alternatives.

To avoid this problem, I suggest to choose the pair of artefactual and non-artefactual predicates such that the function of the artefactual predicate P and the form of the non-artefactual predicate Q are somehow unaligned. If the form of Q makes it impossible to accomplish the function associated with P , this might force a reading where the artefactual P also contributes information about form. An example is the following:

(37) The mad scientists have created a dog that is #(also) a ski.

The predicates *dog* and *ski* do precisely what I just described: a normal-looking dog could not function as a ski, so the animal must have some physical ski-like form for the state of affairs described by (37) to even be imaginable. Without *also*, the sentence is complete nonsense; with *also*, one is somehow directed to imagining a cartoon scenario where the dog's body is ski-like, however one wants to imagine that. While this example is obviously very cartoonish (precisely to avoid the problems we ran into with (36)), it is striking that *also* is quite necessary here.

In short, while the empirical picture involving the co-predication of an artefactual predicate and a form-denoting non-artefactual predicate is complex, I believe (37), unlike (36), is the datapoint that actually answers the present research question. Here, *dog* and *ski* both have at least FORM as an outer jurisdiction, and *also* is required. Thus, it must be that at least one of these predicates feeds alternatives for the other, such that controlled Exh creates a logical contradiction without *also*. Specifically, *ski* is an alternative to *dog* since *ski* has the FORM inner jurisdiction, matching the outer jurisdiction of *dog*. Given that the outer jurisdiction of *ski* in (37) is $\text{FORM} \oplus \text{FUNCTION}$, *dog* cannot be an alternative to *ski* because *dog* does not have the FUNCTION inner jurisdiction; the alternative it would feed— $j_{\text{FORM} \oplus \text{FUNCTION}} \textit{dog}$ —would be ill-formed.⁸

There are other examples which are perhaps more clearly acceptable than (37). One such example was in fact provided in section 3. In (15), there was a 'HUMANOID' taxonomy grouping together predicates like *human* and *robot*; (38) is repeated from (15h).

(38) Cyborgs are humans that are #(also) robots.

Robots are artefacts, but humans are not; yet, the predicates *robot* and *human* are alternatives for controlled Exh. We can see the same thing with predicates other than *robot*, e.g.:

(39) Flying cyborgs are humans that are #(also) planes.

⁸A possible criticism of my argumentation from (37) is that, given the mad scientists' involvement, the dog is not really a naturally occurring individual anymore—it is in some sense an artefact. This criticism is probably not quite right, if the dog either existed as a normal dog prior to the mad scientists' involvement, or if it is the offspring of another ski-dog (on the reading of (37) where the scientists have not created a single individual dog but a new breed of dogs).

Alternatives and jurisdiction in predication

Thus, the observation that *also* is required to co-predicate non-artefactual form-denoting predicates with artefactual predicates that have $\text{FORM} \oplus \text{FUNCTION}$ as their outer jurisdiction is not limited to (37).

In sum, it appears that whenever two predicates have FORM as an inner jurisdiction, they can feed alternatives for controlled Exh. As mentioned above, the fact that *also* is required to co-predicate a non-artefactual form-denoting noun with an artefactual noun does not *necessarily* mean that there is no taxonomic constraint on the creation of alternatives for controlled exhaustivity. It could be that the ARTEFACTS taxonomy posited above is simply too narrow, and all the predicates we have been looking at (whether *door*, *ski*, and *robot* or *waterfall*, *dog*, and *human*) are part of a very general taxonomy of THINGS WITH A BODY. However, it remains that there is no positive empirical evidence in favour of any taxonomic constraint on the creation of alternatives. It is at the very least *simpler* to take jurisdictional identity to be the only factor in creating alternatives for controlled Exh. The conclusion is therefore that all predicates feed alternatives for all predicates as long as the resulting alternatives are not ill-formed due to a jurisdictional mismatch. Q can be an alternative to P as long as the outer jurisdiction of P is among the inner jurisdictions of Q .

6. Conclusion

An obvious descriptive fact about language is that different expressions contribute different kinds of information. What the present paper has suggested is that this notion is of central importance in capturing the interaction between predicates and the logical expression *also*.

I have shown that many predicates (e.g. *green* and *white*) are lexically consistent despite leading to the intuition of a contradiction in basic sentences (40a). The incompatible meaning of predicates (the universal meaning of the colour terms in (40a)) is due to an obligatory and ultra-local ('controlled') exhaustification effect. Thus, one somehow has to capture that some lexically consistent pairs of predicates like *green/white* are intuited as *inconsistent*, while other lexically consistent pairs like *green/long* (40b) are intuited as *consistent*.

- (40) a. #The green table is white.
b. The green table is long.

What relation exists between *green* and *white* that does not exist between *green* and *long*?

In prior work (Paillé 2020), I took this relation to be taxonomic co-membership. This paper has suggested that 'jurisdiction'—the kind of information contributed by a predicate, similar to the qualia of Pustejovsky (1995)—is a better notion. I started by observing context-sensitivity among predicates sometimes requiring *also*:

- (41) a. This dishwasher is #(also) an oven.
b. This dishwasher is a good oven.

Predicates only require *also* to be consistent if they contribute the same kind of information in a given sentence, or have the same 'outer jurisdiction.' In (41a), both are contributing information about form and function, but this isn't the case in (41b).

From the observation that a jurisdictional-identity constraint is a required part of accounting

for when *also* is required, I moved on to suggesting that this can in fact replace the notion of taxonomic co-membership altogether. First, many predicates that do not require *also*, like *green/long*, are predicates that cannot share an outer jurisdiction (in this case, *green* can only contribute information about colour, and *long* about length), so no reference to taxonomic co-membership is required anymore. Second, I showed that all form-denoting nouns can be alternatives, regardless of whether they are artefactual or not. This is captured on the jurisdictional approach without needing to make reference to taxonomies. This jurisdictional approach effectively puts no limits on predicates' alternativehood other than a well-formedness condition on alternatives, at least on the semantic approach to jurisdiction tentatively taken in this paper. If the asserted predicate has the outer jurisdiction FORM, this is due to it taking a covert jurisdictional argument j_{FORM} , and the predicate's alternatives are only well-formed if they can take j_{FORM} too; this in turn requires them to have FORM as an inner jurisdiction.

Many questions are left open. First, the notion of jurisdiction is obviously sketchy; my intention has been to show that it is better than taxonomies to capture which pairs of predicates require *also*, and I have not gone beyond this. The best path forward I know of in the literature is in the tradition of the generative lexicon (e.g. Pustejovsky 1995). Jurisdictions also suffer from the same problem observed many times in the literature on thematic roles (e.g. Dowty 1991): it is not clear what the exact set of jurisdictions is and if that set is even finite. A third question is how to formalize jurisdictions, and whether the j arguments in this paper are the way to do so. Such questions constitute an important research programme touching on predicates, strengthening, and the relationship between language, world knowledge, and the conceptual module of the mind.

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Alternatives and jurisdiction in predication

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