The Inventory of Functional Categories and Conditions on the Possibility of Experience

E. Matthew Husband

St. Hugh’s College

University of Oxford

1 Introduction

• The Observation: When you look across languages, there is a striking reoccurrence of functional structure (Cinque 2013; Kayne 2005; Talmy 1985).
  – Attested: Space, time, number, causation, possibility…
  – Unattested: Danger, divinity, emotion, social value…

• The Question: Why does natural language have the inventory of functional categories that it does?
  – Surprisingly little insight into answers for this question.

Roadmap

i. Functional categories and the functional inventory
ii. Previous theories of the functional inventory
iii. Pure a priori representations as conditions on the possibility of experience
iv. Future concerns and some conclusions

2 Functional categories and the inventory

General distinction between functional and lexical categories (Abney 1987; Fukui 1986)

<table>
<thead>
<tr>
<th>Functional</th>
<th>Lexical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed Class</td>
<td>Open Class</td>
</tr>
<tr>
<td>Morphophonologically Weak Logical Meaning</td>
<td>Morphophonologically Strong Substantive Meanings</td>
</tr>
</tbody>
</table>

(1)
Focusing on functional meanings, von Fintel (1995) identifies three special features of functional meanings:

i. Permutation invariant (insensitive to the specific facts about the world)
ii. Have high semantic types (and thus cannot be quantified over \(\textit{almost}, \textit{again}, \textit{too}\) are not possible answers to \textit{how}-questions), enter into comparative formation, or act as antecedents of pro forms like \textit{thus} and \textit{so} (Chierchia 1984: 86)
iii. Are subject to universal constraints (e.g. All determiners are conservative.)

<table>
<thead>
<tr>
<th>Lexical Element</th>
<th>Functional Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-logical Meaning</td>
<td>horse, run, purple</td>
</tr>
<tr>
<td>Logical Meaning</td>
<td>mere, deny, majority</td>
</tr>
</tbody>
</table>

### 2.1 Inventory of Functional Categories

**Question:** How many functional categories are there?

- Kayne’s (2005) list of functional elements contains 50 distinct cases, of which he has “certainly forgotten some”.
- Heine & Kuteva (2002) list some 170 independent targets of grammaticalization, i.e. separate grammatical categories.
- Cinque (2013) argues that this list broadens to some 400 if one considers that many of Heine & Kuteva’s targets actually correspond to more than one grammatical category.

### 2.2 Constraints on the Functional Inventory

Early observations from Talmy (1985):

“There are many characteristics of an event’s participants that are not marked anywhere in the verb complex, even though they seem as reasonable (from an a priori perspective) as the qualities that are marked. Thus, while an argument’s numerosity and distribution can be marked, there will be no marking for its color or whether it has a symmetrical arrangement, even though these very qualities are important in other cognitive systems, such as visual perception” (p. 134).
“It seems that no markers or incorporations indicate notions unrelated to either the referent event or the speech event. If they existed, one might encounter cases like *The chair broke-ka* meaning ‘The chair broke and I am currently bored’ or ‘The chair broke and it was raining yesterday’ ” (p. 138).

More recent discussion in Cinque (2013):

“only a fraction of our cognitive concepts and distinctions seems to find a grammatical encoding in the languages of the world, where by grammatical encoding I mean encoding in one of the closed classes of categories (affixes, particles, auxiliaries, prepositions, etc.) that belong to the functional rather than the substantive lexicon of languages... Most cognitive concepts and distinctions do not find any such encoding.”

Examples of unattested functional categories:

(3) a. He has climb*end* the tree (intended meaning: ‘he has worryingly (for the speaker) climbed the tree’; just as some languages can express, through verbal affixes, ‘he has surprisingly (for the speaker) climbed the tree’, with so called “mirative” morphemes)
b. He fight*af/run*af (intended meaning: ‘he is afraid of fighting/running’; just as many languages use V-suffix to express the notion ‘is desirous of V-ing/wants to V’)
c. He did*ish* it (intended meaning: ‘He did it shamelessly’; just as some languages use a V-suffix to express the notion ‘V in vain, unsuccessfully’, the so-called ‘frustrative’ aspect affixes)
d. They enter*dan* the forest (intended meaning ‘they are entering the forest but it is dangerous for them to’)
e. I say*am* you are wrong (intended meaning: ‘I am sympathetic in saying you are wrong’)

(4) a. this X (the X close to the speaker)
b. that X (the X not close to the speaker)

(5) a. #dir X (the X dear to the speaker)
b. #dar X (the X not dear to the speaker)

Other cognitive categories that do not find grammatical expression:

1 Similar points are raised in Cinque (1999: 244 fn. 10), Cinque (2006: fn. 26) and Cinque & Rizzi (2010: fn. 10).
THE BIG QUESTION: Why are certain conceptual categories grammatically privileged?

3 Some current approaches

3.1 Crystalization and UG

Cinque and colleagues have proposed over a number of papers that the inventory is part of UG (Cinque 1999, 2006, 2013; Cinque & Rizzi 2010). From Cinque & Rizzi (2010: 64):

“…precisely what elements make up the hierarchy [of functional categories] may simply be the result of the linguistic crystallization of a particular set of cognitive categories among the many more that simply do not find a grammatical encoding in UG.”

Problems:

• The approach is entirely stipulative and offers no real insight.

3.2 Constraints on elaborateness

Kuteva’s (2009) Hypothesis: Conceptual domains that are most amenable to grammaticalization are those that are basic-level concepts.

“The more semantically elaborate a notional category is, that is, the more specificities it involves, the less likely it is for this category to receive a grammaticalized expression” (pg. 17)

(6) Source → Target
a. go/come → future tense markers
b. crawl/run → future tense markers

2 Chomsky’s (1981) Principles and Parameters framework and Jackendoff’s (2002) ‘UG as a toolkit’ may also have this flavor.
Functional Categories & Conditions on Experience

Problems:

• “It is however hard to see why expressions of “surprise”, which are gram-
  matically encoded through mirative morphemes, or speaker-oriented adverbs
  like oddly, strangely enough, etc., should be less elaborate semantically
  than expressions of “interest”, “disgust” or “contempt”, which are never
  grammatically encoded” (Cinque 2013).

• Elaborateness seems to be just another way to say that functional elements
  are more abstract. von Fintel (1995) points out that approaches which take
  the abstractness or blandedness of functional elements as the main marker of
  their functionality do not say what is meant by abstract or bland, or, for that
  matter, (un)elaborate, beyond mere intuition.

• The relationship between elaborateness of a domain and grammaticalization
  of that domain is more tendency than dichotomy.

3.3 Cognitive primitives

The main intuition in the literature is that the conceptual domains that are part of the
functional inventory are somehow primitive to our conceptual system.

• The minimalist program in general can be seen as one approach that as-
  sumes a strong role of the interfaces in shaping the content of the functional
  inventory.

Mobbs (2014) takes this to reflect the interface conditions on syntax:

“It is preferable to at least start from the position that the cate-
gorisation of syntax reflects a CI-interface system designed to meet
pre-linguistic thought” (pg. 75)

• Some conserved machinery co-opted by the broad faculty of language
  (Mobbs 2014):
    – the singular-plural distinction (Barner et al. 2007)
    – spatial and temporal indexing of information (Gallistel 2009)
    – the notion of bounded entities moving in a continuous fashion (Spelke
      1998)
    – the animate-inanimate distinction (Gelman 1990)
– propositionality e.g. perceptual/knowledge states (scrub jays: Emery & Clayton (2004), Dally, Emery & Clayton (2006); rhesus monkeys: Flombaum & Santos 2005, Santos, Nissen & Ferrugia 2006))
– event structure [actor-[action-goal]] scheme (rhesus monkeys; newborn chicks, Regolin, Tommasi & Vallortigara (2000))
– goal-directed/intentional behavior (chimpanzees: Uller (2004))

3.3.1 Deriving the function hierarchy

Ramchand & Svenonius (2014) offer a particular account of how certain cognitive primitives interface with the language faculty.

“[T]here are underlying cognitive biases which can be assumed to be independent of syntax, such as certain biases regarding the separation of percepts into domains (e.g. events, which have participants, versus objects, which can be participants in events) or the organization of perceived states of affairs in terms of Figure and Ground. Such aspects of the cognitive backdrop for language, we suggest, lead to certain structures being universally realized.” (pg. 161)

• The core functional hierarchy follows from extra grammatical cognition.
• The extended projection C-T-v-V arises from the way that general cognition experiences the world in terms of events, situations, and propositions.
Functional Categories & Conditions on Experience

(7) Characteristics of eventualities
   a. People have consistent intuitions about what percepts constitute a single event; an instance of a potentially distinct event-type may be a subevent in a larger event (Wolff 2006)
   b. Causation and resultativity are relations among subevents; possibly they are both specific instances of a more general ‘leads to’ relation (Ramchand 2008)
   c. Thematic roles are relations between individuals and events (Higginbotham 1985; Parsons 1990)
   d. Stativity and dynamicity are possible properties of events or subevents (Bach 1986; Jackendoff 1990)

(8) Characteristics of situations
   a. Situations are elaborations of eventualities (Kratzer 2008) (hence they presuppose the existence of an eventuality, so the eventuality is either existentially closed or bound by some other kind of operator)
   b. Situations have a TIME parameter, unlike events (Giorgi & Pianesi 1997)
   c. Situations have a WORLD parameter, unlike events (Lewis 1986; Austin 1950)
   d. Situations can have topics (the case where the Austinian topic situation is based on an individual, or a description of an individual)

(9) Characteristics of propositions
   a. Propositions are elaborations of situations; thus they presuppose a situation, which is existentially closed
   b. Propositions, unlike situations, are anchored to the utterance context, having ‘Force’ in the discourse (Bianchi 2003; Ritter & Wiltschko 2009; Wiltschko 2014)
   c. It is only at the level of the proposition that speaker-oriented parameters come into play (Giorgi 2010).

Problems:

- Why are events, situations, and propositions themselves privileged semantic types? Even if a domain is/appears to be primitive to our conceptual system, it does not necessarily become grammaticalized.
3.3.2 Core knowledge

Core knowledge is a body of theories about knowledge systems that are privileged by human cognition (Spelke & Kinzler 2007).

- Available to human infants and non-human animals
- Provide a set of principles that individuate domain-specific entities and support inferences about these entities’ behavior
- Characterized by a set of signature limits on the system that is consistent across take, age, culture, and species

Carey (2009) noted that core knowledge concepts often appear to underlie the meanings of closed-class vocabulary (e.g. prepositions, determiners, bound morphemes, numerical classifiers, etc….) and lexical categories (e.g., count vs. mass nouns, nouns vs. verbs, etc….)

“There seems to be a mandatory framework of interpretable formal features for building phrase structure; this is plausibly imposed by the nature of the CI-interface and our shared ‘core knowledge systems’ (Spelke 2000, 2003). That is, it seems likely that only quite particular semantic framing makes sense mind-internally, and so [narrow syntax] must be tailored/constrained accordingly.” (Mobbs 2014: 83)

Mobbs (2014) further defends this position from Cinque’s dismissal, arguing that:

“‘[m]ost cognitive concepts ... do not find [grammatical] encoding’ is explained by the fact that the majority of them are composed of conceptual ‘primitives’ (provided by core knowledge systems) ... and some unknown CI-property of ‘salien[ce]’ among conceptual primitives is plausibly involved in determining which are grammatical, and so ‘structure sense’. This property may give rise to the functional categories reflexively, or through independent coding in UG” (Mobbs 2014: 84-85f).

Strickland (2015) proposes a particular relationship between core knowledge and the functional inventory, proposing that “terms or structures that refer to core categories are frequently mentioned and thereby become likely to undergo a process of grammaticalization.”

- Count/mass distinction ~ Core object cognition
Functional Categories & Conditions on Experience

- Classifiers ~ Core animacy cognition (e.g. intentionality)
- Spatial prepositions ~ Core physical mechanics
- Causatives ~ Core physical causality
- Agent/patient ~ Core event structure

Problems:

- There is no current principled theory for which systems are part of core cognition.
- Frequency of occurrence seems unlikely to be the right mechanism, especially in terms of explaining why the inventory is what it is.
- Strickland (2015) argues only for a correlation between functional categories and core cognition: “This view does not predict that all core distinctions are regularly imported into language or that all grammatical distinctions are necessarily a product of core knowledge.”

3.4 What’s missing?

Missing from each of these is a theory of what makes something conceptually primitive.

- The way forward:
  - Identify a theory that privileges the conceptual categories that appear in the functional inventory.
  - Demonstrate how such a theory derives these conceptual categories.

THE BIG IDEA: The conceptual categories that can be grammaticalized are those that are the pure *a priori* conditions on the possibility of human experience.

4 Conditions on Human Cognition

Short side history lesson: 18th century, a clash between the empiricists and the rationalists.

- Lockean and Humean empiricists: Knowledge comes about via the senses. Ideas are just abstractions from sense impressions.
  - But then concepts like substance and cause become mere tendencies.
• Carlessian and Leibnizian rationalists: Knowledge comes about via the intellect. Sensations are just confused form of ideas.
  – But concepts like soul, the universe, and God reach contradictory conclusions.

How to end the stalemate?

• **Kant (1787) Critique of Pure Reason**: Conditions from both sensibility and intellect give rise to our experience.

• The intellect contains concepts like substance and cause, but their application is restricted by sensibility.

• Questions is it addressing:
  – How is it that we come to have unified experience?
  – How is synthetic *a priori* knowledge possible?
  – What are the conditions for the possibility of experience?

Ultimately Kant addresses the role of pure *a priori* representations stemming from the nature of our minds that grounds our experience.

### 4.1 Sensibility and intellect

Knowledge comes from the unification of two sources: Sensibility and Intellect.

<table>
<thead>
<tr>
<th>(10)</th>
<th>Sensibility</th>
<th>Intellect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Given Mode Representation</td>
<td>Intuitive (Immediate) Receptive Intuitions</td>
<td>Discursive (Mediate) Spontaneous Concepts</td>
</tr>
</tbody>
</table>

- **Intuitions**: Singular representations that “immediately related to the object” (A320/B377).
- **Concepts**: Manifold representations that refer to objects “mediately by means of a mark what can be common to several things” (A320/B377).
Application of a concept to an intuition unifies a representation:

“Consider, by way of example, the image of a black triangle on a television screen. The image consists of thousands of small, black and white points disposed in a certain arrangement in space, and that is the intuition our senses deliver to us: a manifold of colored points disposed in a certain manner. But when this array in space is brought to a unity of apperception under the concept ‘triangle,’ all this multiplicity is overthrown and what is represented is an ‘absolute unity’: a particular shape.” (Falkenstein 1995: 76)

Representations can be

- Empirical: arising \textit{a posteriori} from our experience of the world, or
- Pure: arising \textit{a priori} without reference to the world

The conditions on our experience must be pure \textit{a priori} because, as conditions, they are universal and necessary for beings that have minds like ours.

- \textbf{Question:} What is the status of pure \textit{a priori} representations?
- Pure \textit{a priori} representations specify the mind’s functional architecture, e.g. “the basic operations and resources that serve to define the system” (Clapin 1999).

Two questions concerning the architecture of our minds:

1) What are the conditions of our sensible intuitions?
2) What are the conditions of our intellectual concepts?
4.2 Conditions on Human Sensability

Transcendental Aesthetic\(^3\) in Kant (1787) *Critique of Pure Reason*

- Sensability as a receptive faculty.
  - Immediate
  - Intuitive

(12) Double abstraction

```
Object
   /\                  /\                /\       /\
  |   |               |   |            |   |     |   |
Concept Intuition (Appearance) Empirical Sensation (Matter) Pure Intuition (Form)
```

4.2.1 What is a pure intuition?

- Features of extension and form which “remain not in the sense that they can be perceived independently of the sensory content but that they provide a representational content with a determinate structure (topological, affine, and mereological) which is not dependent on this sensory content” (Allison 2004: 107)

Kant lays out the conditions on our senses as those of space and of time in the sense that it is the *a priori* condition of the representation of the sensory content.

- Space is linked to our outer sense though which “we represent to ourselves objects as outside of us, and all as in space”
- Time is linked to our inner sense though which “the mind intuits itself, or its inner state” (A22/B37)

\(^3\) Among one of the many confusing terms, Kant uses the term Aesthetic to mean the senses.
4.2.2 Metaphysical and Transcendental Expositions

Note: Expositions explain why something we take for granted exists the way it does (Falkenstein 1995).4

- Metaphysical Expositions: establish that space and time are given independently from the matter (e.g. empirical part) of sensibility
- Transcendental Expositions: establish that space and time are given independently from empirical experience.

Kant observes that both space and time are:

- a pure (non-empirical) representation
- a necessary representation (of outer sense)
- a singular representation
- an unbounded representation5

Were there no spatiotemporal order already structuring the way our perceptions occur, there would be no basis for discriminating relations of adjacency, simultaneity, etc.

“This is what Kant means by saying that space literally lies as a ground of the spatial relations of externality and adjacency and that time lies as a ground of the temporal relations of simultaneity and succession.” (Falkenstein 1995: 171)

4 Note that it was not given that space and time would be found to be pure a priori representations. Analysis of our representations of sensible qualities by Locke and Hume specifically should that these do not arise in an a priori manner, e.g. Hume (Treatise 1.1.1): Sensible qualities presuppose specific effects on specific sense organs: 1) people whose sense organs have never been affected in a specific way cannot form the concept of certain sensations (e.g. having not eaten a pineapple and the taste of a pineapple), and 2) people who lack specific sense organs are unable to conceive of a whole realm of sensible qualities (the blind cannot form concepts of colors, though they can form a concept for color words that works off of an analogous domain. Locke goes further to say that each of us might have very different underlying ‘simple ideas’ having been affected by the same object (Essay 2.32.15, cf. 3.2.1-4

5 Falkenstein (1995) and Blomme 2012 both argue that the metaphysical expositions actually arise from considerations of our forms of judgment.
4.2.3 Summary

What we know *a priori* about objects is their spatiotemporal conditions.

- **UPSHOT:** Space and Time, as conditions on the possibility of sensible intuitions, are conceptual categories that can be grammaticalized.

4.3 Conditions on Human Intellect

Transcendental Analytic in (Kant 1787) *Critique of Pure Reason*

- Intellect is a spontaneous faculty.
- Uses concepts to unify what is given in intuition.

**Question:** What does the Intellect bring to cognition?

- Kant begins with *On the Clue to the Discovery of All Pure Concepts: The Table of Judgments*

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Universal</th>
<th>Quality</th>
<th>Affirmative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Particular</td>
<td></td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>Singular</td>
<td></td>
<td>Infinite</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relation</th>
<th>Categorical</th>
<th>Modality</th>
<th>Problematic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hypothetical</td>
<td></td>
<td>Assertoric</td>
</tr>
<tr>
<td></td>
<td>Disjunctive</td>
<td></td>
<td>Apodictic</td>
</tr>
</tbody>
</table>

From these, Kant derives the pure concepts: The Table of Categories

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Unity</th>
<th>Quality</th>
<th>Reality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plurality</td>
<td></td>
<td>Negation</td>
</tr>
<tr>
<td></td>
<td>Totality</td>
<td></td>
<td>Limitation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relation</th>
<th>Subsistence</th>
<th>Modality</th>
<th>Possibility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Causality</td>
<td></td>
<td>Existence</td>
</tr>
<tr>
<td></td>
<td>Community</td>
<td></td>
<td>Necessity</td>
</tr>
</tbody>
</table>

To generate unified experience, the intellect must synthesize what is given in intuition in four basic ways (Falkenstein 1995):

1. From Quantity: the form of perception, combination of the shape of sensory regions (pattern recognition)
Functional Categories & Conditions on Experience

2. From Quality: the matter of perception, comparison of the qualities of appearance of those regions (quality differentiation)

3. From Relation: objects, experience of enduring, mind-independent, intersubjectively reidentifiable objects (object recognition)

4. From Modality: empirically guided thought, postulations of the existence of unobserved or unobservable (remote in space or time, or exceedingly small or momentary) objects (theoretical inference)

Abilities that are presupposed by our capacity to unify representations

<table>
<thead>
<tr>
<th>Category</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td></td>
</tr>
<tr>
<td>Unity</td>
<td>sense data are coincident</td>
</tr>
<tr>
<td>Plurality</td>
<td>sense data are separate</td>
</tr>
<tr>
<td>Totality</td>
<td>sense data are adjacent</td>
</tr>
<tr>
<td>Quality</td>
<td></td>
</tr>
<tr>
<td>Reality</td>
<td>identity</td>
</tr>
<tr>
<td>Negation</td>
<td>contrast</td>
</tr>
<tr>
<td>Limitation</td>
<td>resemblance</td>
</tr>
<tr>
<td>Relation</td>
<td></td>
</tr>
<tr>
<td>Substance</td>
<td>enduring objects</td>
</tr>
<tr>
<td>Causality</td>
<td>successive objects</td>
</tr>
<tr>
<td>Community</td>
<td>co-existing objects</td>
</tr>
<tr>
<td>Modality</td>
<td></td>
</tr>
<tr>
<td>Possibility</td>
<td>object is consistent with our knowledge(^6)</td>
</tr>
<tr>
<td>Necessity</td>
<td>object is entailed by the sum of our knowledge(^7)</td>
</tr>
<tr>
<td>Actuality</td>
<td>object is warranted on its own right(^8)</td>
</tr>
</tbody>
</table>

Two questions:

1. Why are these the basic logical functions of the Intellect?

2. How are these basic logical functions related to the categories?

• Question 1 raises the completeness problem.

• Question 2 raises the connection problem.

---

\(^6\) e.g. is thinkable within the conditions known so far

\(^7\) e.g. follows from (legitimate) causal reasoning from actually given causes

\(^8\) e.g. given through intellectual synthesis of an actually obtained intuition or that follows by (legitimate) causal reasoning from actually given effects
4.4 The completeness problem

The thesis: The table of judgments exhausts the forms of judgment.

- Why is this important to establish?
- Because establishing completeness derives the table of judgments, thus removing a great deal of stipulation found in other theories addressing the functional inventory from conceptual primitives.

Following Allison (2004), the problem is broken down into two parts:

1. The completeness of the titles of judgment, and
2. The completeness of the moments of judgment

4.4.1 The completeness of the titles

After The Clue, Kant draws attention to what he calls the logical function of the understanding in judgments.

- Judgment: The objective (e.g. truth-valuable) relation of a subject (some object, be it an intuition or a concept) to a predicate (a concept) via subordination of the subject under the predicate (Longuenesse 1998).
- Every judgment involves a synthesis/unification of representations in the mind.

“Kant’s claim is that [judgment] may be broken down into a number of sub-functions that fall into certain types” (Allison 2004: 137). Thus the titles are derived from the definition of judgment.

- Quantity and Quality are determinations of the relation of subordination of concepts in a judgment.
- Relation and Modality are determinations of the relation of the assertion to its condition (Longuenesse 1998: 106).

9 Other more in-depth arguments concerning completeness can be found in Brandt (1995); Reich (1992); Schulting (2012) and Wolff (1995), but here I follow Allison (2004) for ease of exposition.
10 Note also that judgments are “objectively valid”, e.g. have truth-conditions, whereas concepts themselves are not.
11 As noted in Allison (2004), because Kant is concerned with the conditions of human cognition (which he takes to be discursive, not intuitive, and thus require judgments), the nature of judgment is the cornerstone of his understanding of the Intellect, e.g. the faculty of judgment.
Functional Categories & Conditions on Experience

- Quantity determines the scope of the predicate of the judgment - roughly its quantifier, e.g. given the judgment *All bodies are divisible*, the predicate (*divisibility*) is related to everything falling under the subject concept (*body*).

- Quality is the making of a claim (assertion or denial, roughly the presence of negation) on the basis of the scope of the predicate (and thus presupposes Quantity, e.g. the claim to be assessed must be quantified: *All*, *some*, or *a (single) body*).

- Relation determines which representation is the ‘condition’ and which is ‘conditioned’ (and thus presupposes both Quality and Quantity since these jointly provide the conditions of the determination of the relation expressed in the judgment).

- Modality is concerned with the relationship of a particular judgment to a given body of knowledge, the epistemic value of a judgment (and thus presupposes Quantity, Quality, and Relation as these constitute the sub-functions of a particular judgment).

**4.4.2 The completeness of the moments**

In general, Kant’s trichotomy of the moments under each title arise from his systemic analysis of general logic’s basic dichotomy (that arise analytically via the principle of contradiction).

- Basic oppositions arise from the principle of contradiction: A and not A (*a priori* analytic)

- Synthetic Unity: Requires a condition, something conditioned, and a concept that arised from the unification of the conditioned with its condition (*a priori* synthetic).

**Question:** How does this derive the moments under each title?

- Quantity
  - Basic dichotomy via contradiction: Universal vs. Particular (e.g. non-Universal)
  - Singular: Universal judgments are singular in syllogisms, but singular judgments are also non-universal.

- Quality:
– Basic dichotomy: Affirmative (*The soul is mortal*) vs. Negation (*The soul is not mortal*)

– Infinite (*The soul is immortal*): Infinite judgments affirm a predicate of a subject, but infinite judgments also exclude the predicate from the domain of the subject.

**• Relation**

– Basic opposition: Categorical (something is confirmed unconditionally) vs. Hypothetical (something is confirmed only under a condition)

– Disjunctive (*The world exists either through blind chance, or through inner necessity, or through an external cause*): Disjunctive judgments affirm something unconditionally, but also make their claim on the basis of a relation of propositions, which are each taken merely as problematic (neither affirmed nor denied).

**• Modality**

– Basic opposition: Problematic (truth value is undetermined) vs. Assertoric (truth value is determined by their connection with principles of the intellect)

– Apodictic: The truth of apodictic judgments is determined simply on the basis of their capacity to be true, e.g. they are necessary truths. “Necessity is nothing other than the existence that is given by possibility itself” (B111).

**4.5 The connection problem**

*The thesis:* The table of judgments exhausts the table of categories.

• Question: How are the categories connected to the forms of judgment?

• The categories are the function of each of the forms of judgment.

From Allison (2004: 151): “the move from judgmental form to category turns on an ontological application of the logical function embedded in all judgments of the corresponding form.”

Focusing only on the Categories of Relation:

• Relation: Categorical Judgment → Substance Category
Functional Categories & Conditions on Experience

- Categorical judgments require the capacity to distinguish the subject from its properties.
- The subject of a categorical judgment is necessarily conceived of as a bearer of properties and not as a property itself.
- Thus it is necessary to consider the subject as if it were a substance (in the logical sense). Kant’s rule “never a predicate of anything else” applies within a given judgment.
- **Ontological Application**: Substance is characterized as the thought that some entity must be the subject of every judgmental context.

• **Relation**: Hypothetical Judgment → Causality Category
  - Hypothetical judgments require the capacity to order two judgments in terms of ground and consequent.
  - Ground-consequent is not equivalent to a causal relation, but is necessary for a causal relation.
  - **Ontological Application**: The ground-consequent relation is necessary for a real (rather than merely) logical relation.

• **Disjunctive Judgment → Community Category**
  - Disjunctive judgments require the capacity to exhaustively coordinate (as opposed to subordinate) judgments to represent a whole.
  - The combination here is coordination, as opposed to subordination.
  - **Ontological Application**: Coordination is necessary for a community to be established among judgments.

Similar arguments are then to be made for the other categories.

- These are then argued to apply necessarily to all experience, and thus are the conditions on the possibility of experience.\(^{12}\)

### 4.6 Summary

The Intellect further specifies the conditions on possible experience through its own pure *a priori* judgments and categories.

- **UPSHOT**: 12 judgment forms and 12 categories are conceptual representations that can be grammaticalized.

---

\(^{12}\) Kant goes on to provide principles for the application of the categories, e.g. “the rules of the objective use of the categories” (A161/B200).
5 Future Directions

Some further questions to address:

- Do these pure *a priori* representations, coming from sensibility and intellect, fit well with our inventory of functional categories?
  - For instance, are some of the spatial properties that Kant identifies (such as his argument from incongruent parts) found to restrict our particular forms of spatial grammar?
  - Nothing yet about the pure *a priori* representation of “I” (though Kant requires one for the unity of apperception).
  - Does our understanding of the particulars of functional categories help clarify the pure *a priori* representations? (Classifies seem like a mess, though from Adams & Conklin 1973: classifiers are based on spatial form and magnitudes (Quality).)

- Do those conceptual categories that are not found in the functional inventory also fail to find expression in the pure *a priori* representations?
  - Emotion is not a privileged category, so are psych-predicates problematic?\(^{13}\)
  - Social status is not a privileged category, so how do we analyze honorifics/prejoratives?

References


\(^{13}\) One alternative might be to say that lexicalizations of emotion concepts are inaccessible to grammaticalization processes, but there are known counterexamples: love, suffer (*Heine & Kuteva 2002: 220-221*)


Kant, Immanuel. 1787. *The critique of pure reason*.

