



BUSINESS RULE SOLUTIONS
Enabling Operational Excellence

Rules: *Shaping Behavior & Knowledge*

DecisionCamp

September 19, 2023

by Ronald G. Ross

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BRCommunity.com



About Ronald G. Ross



Ronald G. Ross is Co-Founder and Principal of Business Rule Solutions, LLC (***BR Solutions.com***). BRS provides consulting, training and mentoring in support of business rules, concept modeling, knowledge management, business analysis and business architecture.

Mr. Ross co-develops the landmark BRS methodology featuring numerous innovative techniques including the popular ***ConceptSpeak™*** and ***RuleSpeak®*** (free on *RuleSpeak.com*, now also in Spanish, German, Dutch, Norwegian and Polish). These are the latest offerings in a 45-year career that has consistently featured creative, business-driven solutions.

Mr. Ross is Executive Editor of ***BRCommunity.com*** and its flagship on-line publication, ***Business Rules Journal***. Sponsored by BRS, *BRCommunity.com* is an open community for professionals. Mr. Ross is recognized internationally as the ‘father of business rules.’ He was formerly Editor of the Data Base Newsletter from 1977 to 1998.

His newest books are: ***Rules: Shaping Behavior and Knowledge*** (2023) and ***Building Knowledge Blueprints: Enabling Your Data to Speak the Language of the Business*** 2nd ed. (2020) on vocabulary and concept models.

In all, Mr. Ross is the author of ten professional books including ***Building Business Solutions: Business Analysis with Business Rules*** 2nd ed. with Gladys S.W. Lam (2015), and ***Business Rule Concepts: Getting to the Point of Knowledge*** 4th ed. (2013).

Mr. Ross serves as Chair of the annual ***Building Business Capability (BBC) Conference***, the official conference of the IIBA®. He is co-author with John Zachman and Roger Burlton of the 2017 ***Business Agility Manifesto***.

Mr. Ross was a charter member of the Business Rules Group (BRG) in the 1980s and an editor of the two landmark BRG papers, “*The Business Motivation Model: Business Governance in a Volatile World*” (2000) and the *Business Rules Manifesto* (2003). He is also active in OMG standards development including SBVR.

Mr. Ross holds an M.S. in information science from the Illinois Institute of Technology and a B.A. from Rice U.



Rules:

Shaping Behavior
and Knowledge

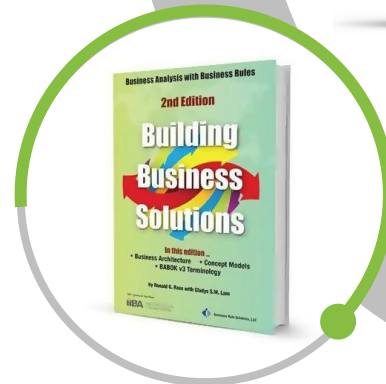
1st edition, 2023



Building Business Solutions

Business Analysis with
Business Rules

2nd edition, 2015



Business Knowledge Blueprints:

Enabling Your Data to
Speak the Language
of the Business

2nd edition, 2019



Business Rule Concepts

Getting to the Point
of Knowledge

4th edition, 2013



Business Rules Manifesto

The Principles of Rule Independence

by Business Rules Group, 2003

Article 1. Primary Requirements, *Not Secondary*

Article 2. Separate From Processes, *Not Contained In Them*

Article 3. Deliberate Knowledge, *Not A By-Product*

Article 4. Declarative, *Not Procedural*

Article 5. Well-Formed Expression, *Not Ad Hoc*

Article 6. Rule-Based Architecture, *Not Indirect Implementation*

Article 7. Rule-Guided Processes, *Not Exception-Based Programming*

Article 8. For the Sake of the Business, *Not Technology*

Article 9. Of, By and For Business People, *Not IT People*

Article 10. Managing Business Logic, *Not Hardware/Software Platforms*

<https://www.brcommunity.com/standards.php>

Also see FAQs, BRManifesto *Insider* section - www.BRCommunity.com

ビジネスルール・マニフェスト

ルール独立の原則

商務規則概述

有關商務規則獨立性的諸原則

Business Rules Manifest

De grondbeginselen van onafhankelijke regels

Manifeste pour les règles métiers

Les principes de l'indépendance des règles

Business Rules Manifest

Die Prinzipien der Business Rules Unabhängigkeit

Veiklos taisyklių manifestas

Taisyklių nepriklausomumo principai

Manifiesto de Reglas de Negocio

Los Principios de la Independencia de las Reglas

Business Rules Manifest

Principerna för verksamhetsreglernas oberoende

İş Kuralları Bildirgesi

Kural Bağımsızlığının İlkeleri



Positioning

Rules:

- for groups and communities of people
- in natural language
- that are computable



Positioning

Rules:

- for groups and communities of people
- in natural language
- that are computable
- included knowledge bases that can be automatically checked for consistency
- for any and all industries, including #regtech #lawtech #fintech ... and #you-name-it-tech



Positioning

Rules:

- for groups and communities of people
- in natural language
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- for any and all industries, including #regtech #lawtech #fintech ... and #you-name-it-tech

The Goal: a comprehensive set of elements of guidance for any business or government in natural language that is directly computable



Out of Scope

- I'm not personally interested in rules for mimicking human intelligence.
- I believe database is probably less important than linguistics in understanding rules.
- I'm not particularly interested in decisions that can be optimized by waiting to apply rules (although it's important).



Disclaimers

- I'm not a logician ...
... although I've certainly been infected.
- I'm not a software engineer ...
... although I've done it.
- I don't represent any software company ...
... although I've been there.
- I didn't create all these ideas by myself ...
... although I was part of the SBVR team that did.



What's a Rule?

rule: a desired state of affairs,
a necessity or obligation

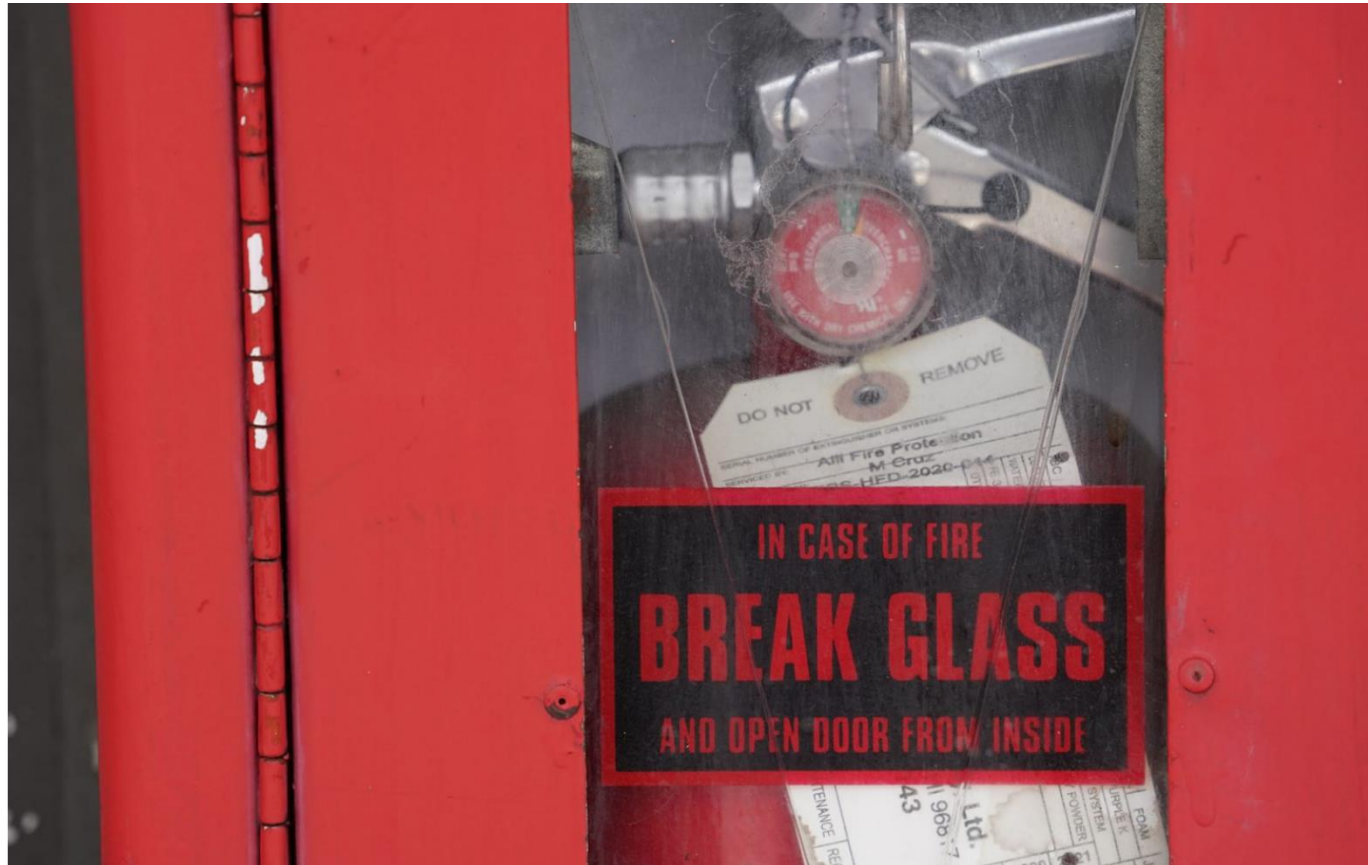


Rule at the entrance to an ocean-front restaurant:

No Shirt, No Service

What's Not a Rule?

- Imperatives calling for action are not rules.



What's Not a Rule?

- Any action that precipitates evaluation of a rule.
- Any action of evaluating a rule per se.
- Any action performed in response to evaluating a rule.
- Any sanction applied upon violation of a rule.
- Any reason why the rule exists (e.g., strategy, goal, policy, risk, regulation, law, etc.).
- Any authorities or authors who put the rule in place.
- Any groups or communities of people to whom the rules apply.
- Any acts of interpretation of the rule.
- Any expression of the rule. (The meaning is the rule, not the statement of the rule.)

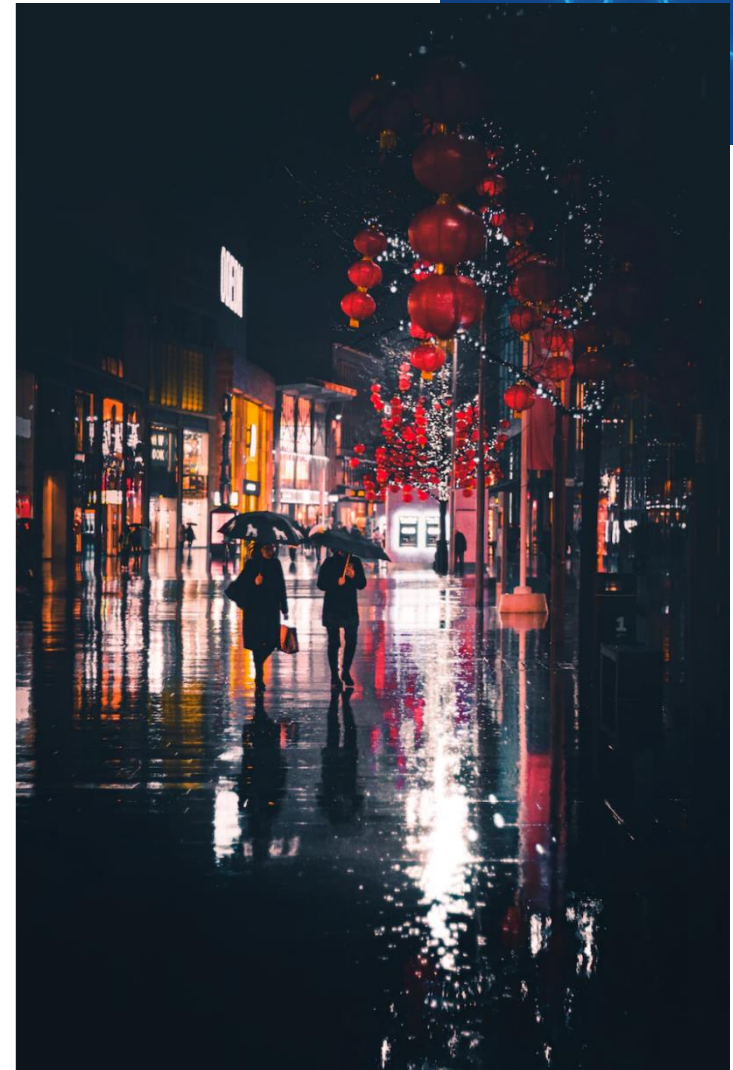


Part 1: Inference Rules

- An inference rule implies a fact from other fact(s).

Example:

If raining, then streets are wet.



Part 1: Inference Rules



Not an inference rule:

*If raining, execute
'open umbrella'
process.*



Part 2: Definitional Rules



Abu Dhabi	Casablanca	Lagos	Munich	Shanghai
Amsterdam	Copenhagen	Las Vegas	New Delhi	Singapore
Athens	Dubai	Lisbon	New York	Stockholm
Auckland	Dublin	London	Osaka	Taipei
Bangkok	Glasgow	Los Angeles	Paris	Timbuktu
Barcelona	Hanoi	Manila	Perth	Tokyo
Beijing	Hong Kong	Melbourne	Prague	Toronto
Beirut	Honolulu	Miami	Rio de Janeiro	Vancouver
Berlin	Istanbul	Milan	Rome	Vienna
Budapest	Jakarta	Montreal	Santiago	Warsaw
Cairo	Jerusalem	Moscow	Sao Paulo	Wellington
Cape Town	Kyiv	Mumbai	Seoul	Zurich

Part 2: Definitional Rules

What Counts?

1. If you connect flights in an airport but you never physically leave the airport, does that city count?



Part 2: Definitional Rules

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1. If you connect flights in an airport but you never physically leave the airport, does that city count?
2. If you are a passenger in a hired car without input about the route and you pass through a city without stopping or veering from the predetermined route, does that city count?



Part 2: Definitional Rules

What Counts?

1. If you connect flights in an airport but you never physically leave the airport, does that city count?
2. If you are a passenger in a hired car without input about the route and you pass through a city without stopping or veering from the predetermined route, does that city count?
3. If you are on a cruise ship that has an outbreak of a pandemic and you anchored at a port but could never leave the ship, does that city count?

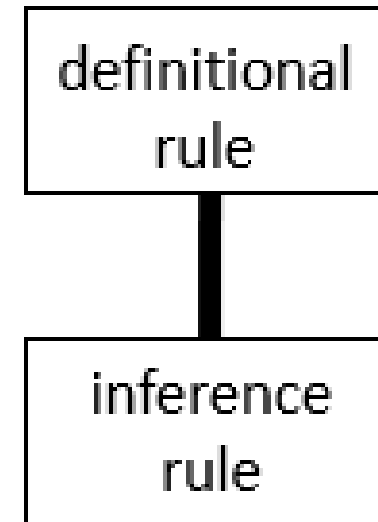


Part 2: Definitional Rules



Definitional rules:

- Tell you what counts as an instance of a concept.
- Are needed for accurate metrics.
- Supplement definitions.
- Are necessities in modal logic.
- Cannot be violated.



Part 3: Behavioral Rules

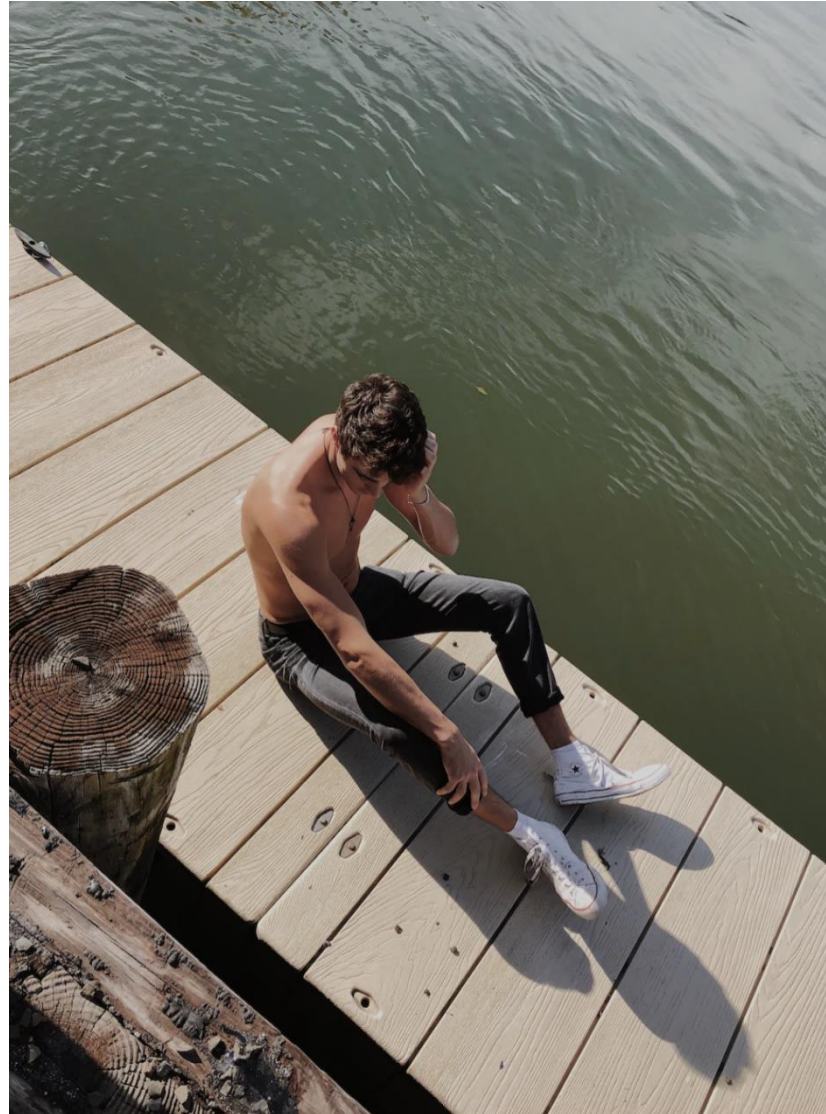


Part 3: Behavioral Rules

Sign at the Entrance to
an Ocean-Front
Restaurant:

No Shirt, No Service

But what counts as a
shirt?



Part 3: Behavioral Rules

Behavioral Rule for Ocean-Front Restaurant:

No Shirt, No Service



What's-a-Shirt Definitional Rule: *A shirt has sleeves and a tail long enough to be tucked inside the waistband of trousers or a skirt.*

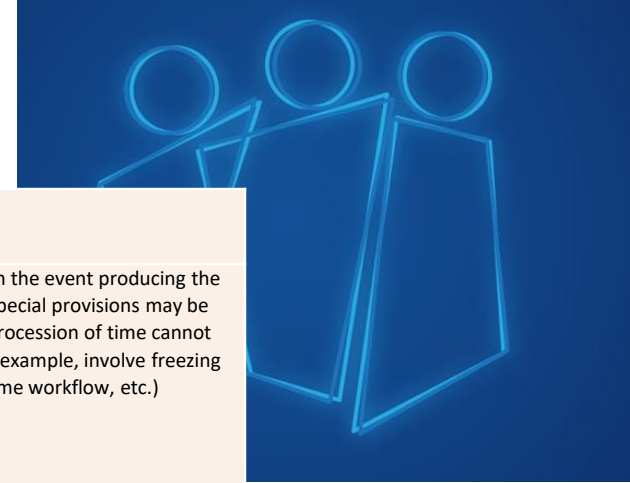
Part 3: Behavioral Rules

Behavioral Rule:

Every person must wear a hard hat on their head while in a construction site.



Part 3: Behavioral Rules



Question:

What Enforcement Level?

Enforcement Level	Description	Implications
strictly enforced	If an actor violates the rule, the actor cannot escape the consequences and possible penalties.	When a violation is detected, results from the event producing the violation are automatically prevented. (Special provisions may be required for time-based rules since the procession of time cannot be prevented. Such provisions might, for example, involve freezing some actor's access privileges, halting some workflow, etc.)
deferred enforcement	The rule is strictly enforced, but such enforcement may be delayed – e.g., until another actor with required skills and proper authority can become involved.	When a violation is detected, results from the event producing the violation are handed off to another worker for resolution (possibly by insertion into a work queue).
override by privileged actor	The rule is enforced, but an actor with special privilege established before the fact may override it.	When a violation is detected, if the actor involved is specially privileged, that actor is given an opportunity to override the rule.
override with real-time waiver	The rule is enforced, but an actor may request a real-time waiver from another actor having before-the-fact authority to give such waivers.	When a violation is detected, the actor involved is given an opportunity to interactively request a waiver from pre-defined authority.
post-justified override	The rule may be overridden by an actor; however, if the override is subsequently deemed inappropriate, the actor may be subject to penalty.	When an override of a rule occurs, a review item (with all relevant details) should be inserted into the work queue of an appropriate actor for review and possible action.
override with explanation	The rule may be overridden simply by providing a reasonable explanation.	When a violation is detected, the actor involved is given an opportunity to override the rule by providing a mandatory explanation.
guideline	Suggested, but not enforced.	When a violation is detected, the actor involved is simply informed/reminded of the rule by some guidance message(s).

From *Rules: Shaping Behavior and Knowledge*,
by Ronald G. Ross, 2023, Appendix H

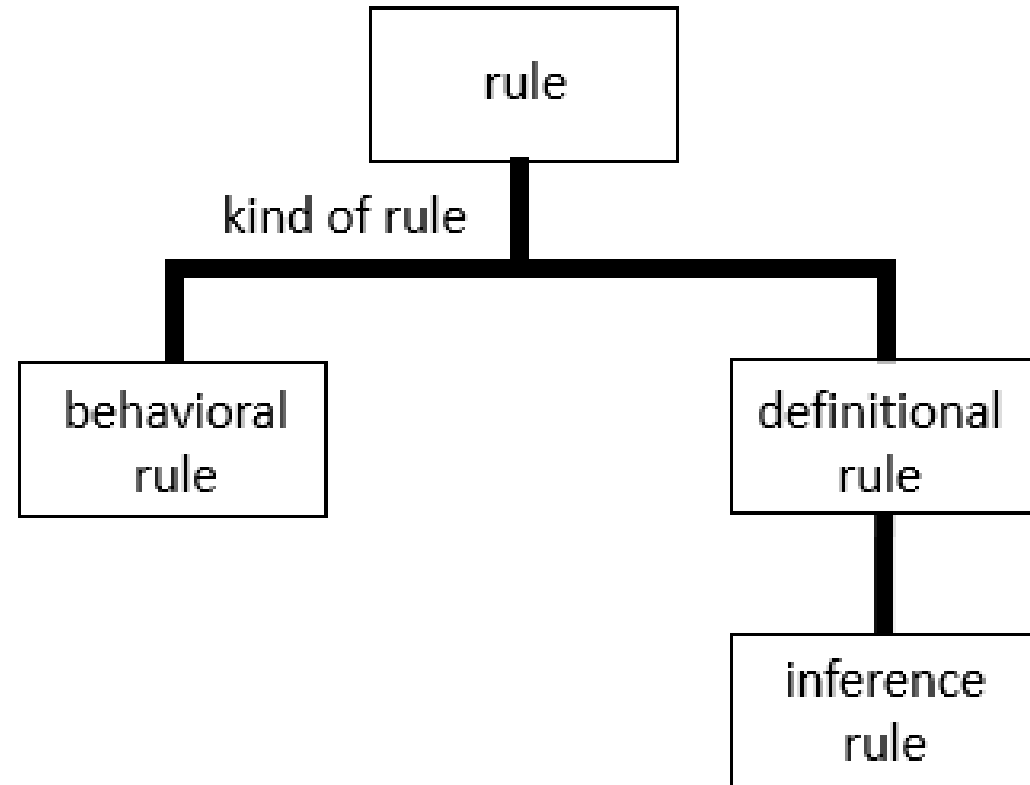


Part 3: Behavioral Rules



Behavioral rules:

- Tell you what should or should not be done.
- Are obligations in modal logic.
- Can be violated (by actors with agency or their bots).
- Usually require definitional rules.
- Do not have to be strictly enforced.



Part 4: Rights

- For every behavioral rule, there is a corresponding right.



Behavioral Rule for Ocean-Front Restaurant:

No Shirt, No Service



Part 4: Rights

- For every right, there is a corresponding behavioral rule.

First Amendment Right: *A person is entitled to freedom of speech.*

Implicit Behavioral Rule: *A person must not be denied freedom of speech.*



Part 4: Rights

- For every right, there is a corresponding behavioral rule.



First Amendment Right: *A person is entitled to freedom of speech.*

Implicit Behavioral Rule: *A person must not be denied freedom of speech.*

Fifth Amendment Right: *A person need not self-incriminate.*

Implicit Behavioral Rule: *A person must not be required to self-incriminate.*



Part 4: Rights

- Rights depend on definitional rules too.

First Amendment Right: *A person is entitled to freedom of speech.*

Definitional rule:

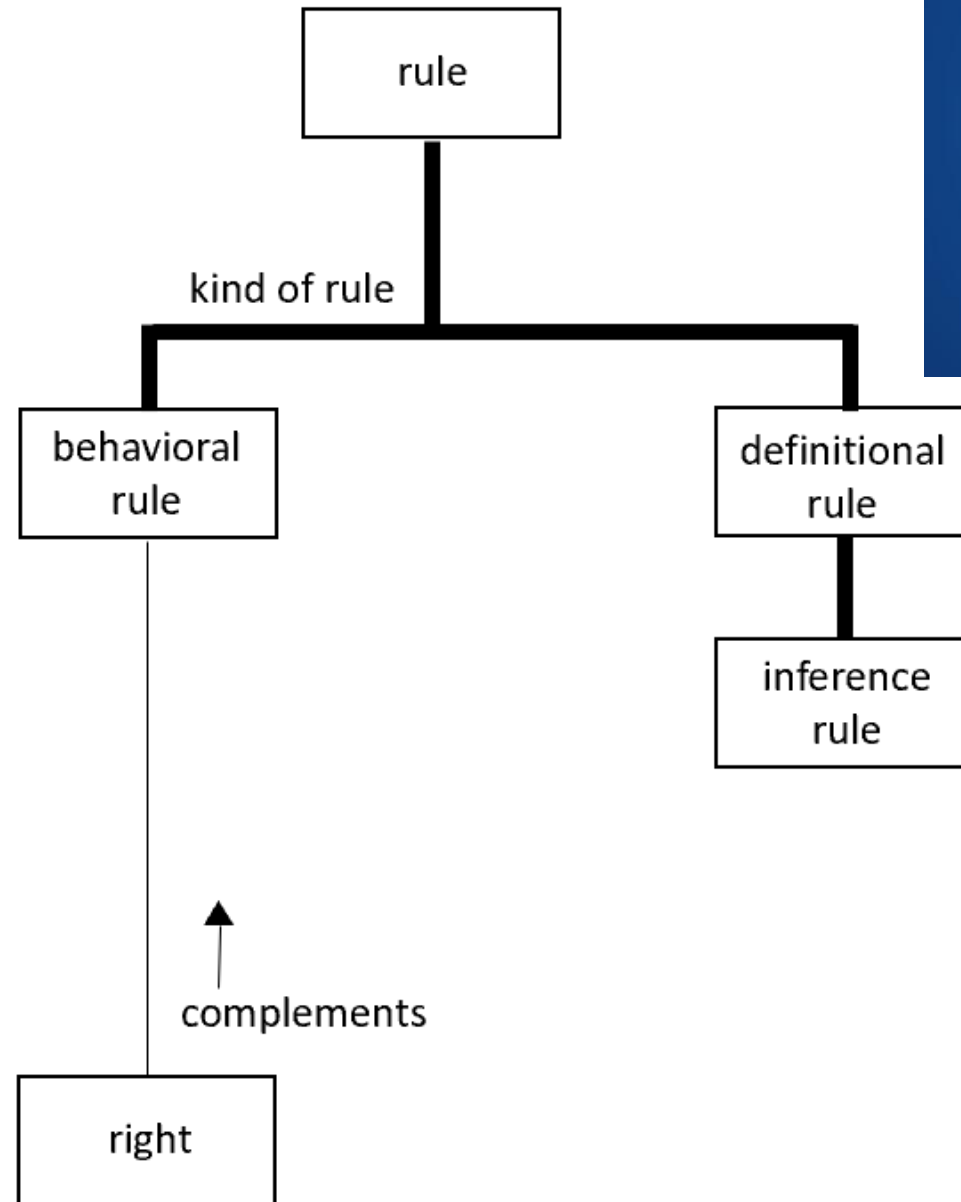
Shouting “Fire!” in a crowded theater is not considered freedom of speech.



Part 4: Rights

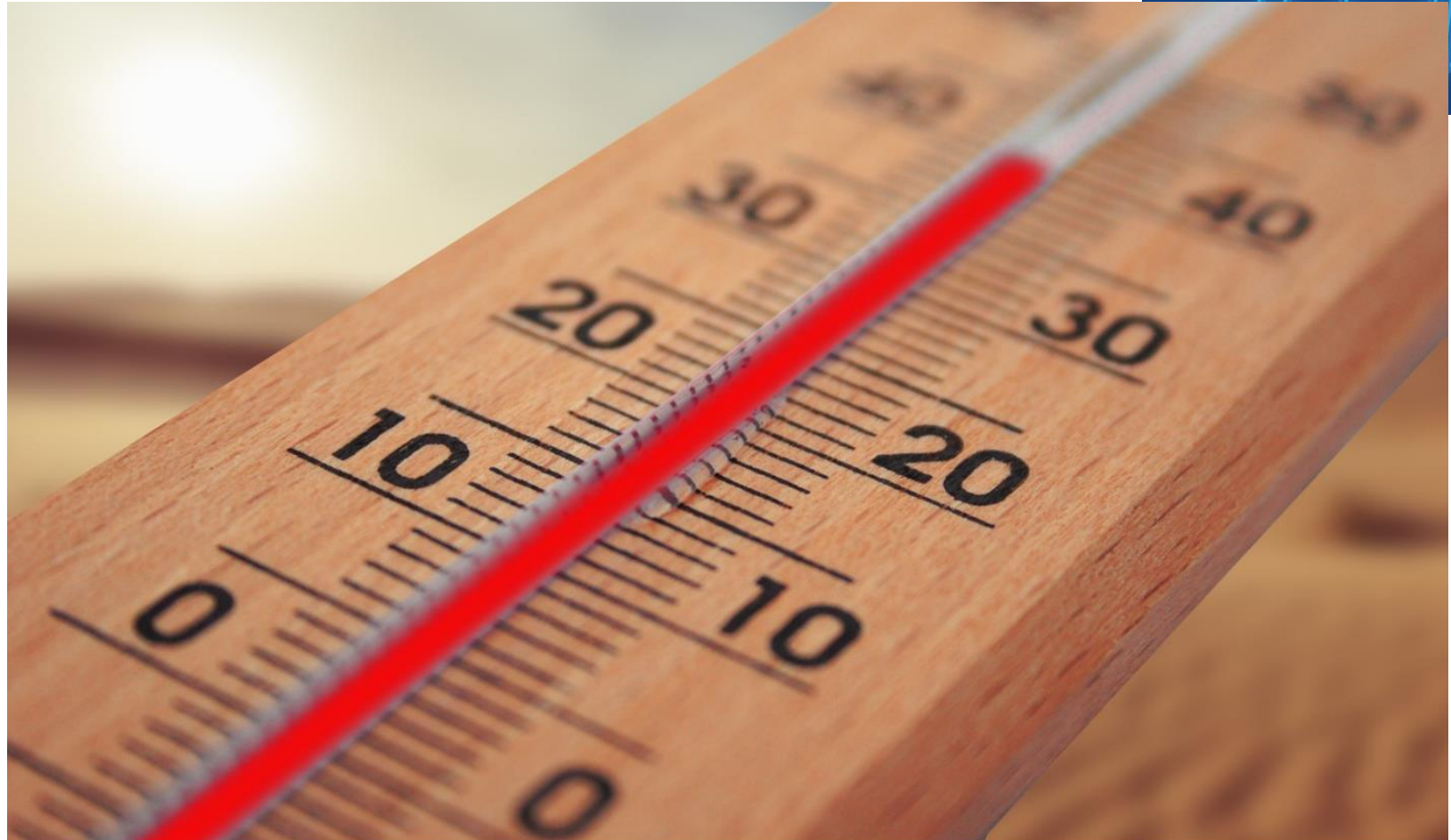
Rights:

- Complement every behavioral rule.
- Are often implicit.
- Are often found in legal agreements and laws instead of their corresponding behavioral rules.



Part 5: Warranties

It gets hot
where I live!



Part 5: Warranties

Warranty (Behavioral Rule):
My A/C equipment will operate correctly for five years.

Remedy (Behavioral Rule): *If the Warranty is violated, the manufacturer must replace the equipment free of charge.*

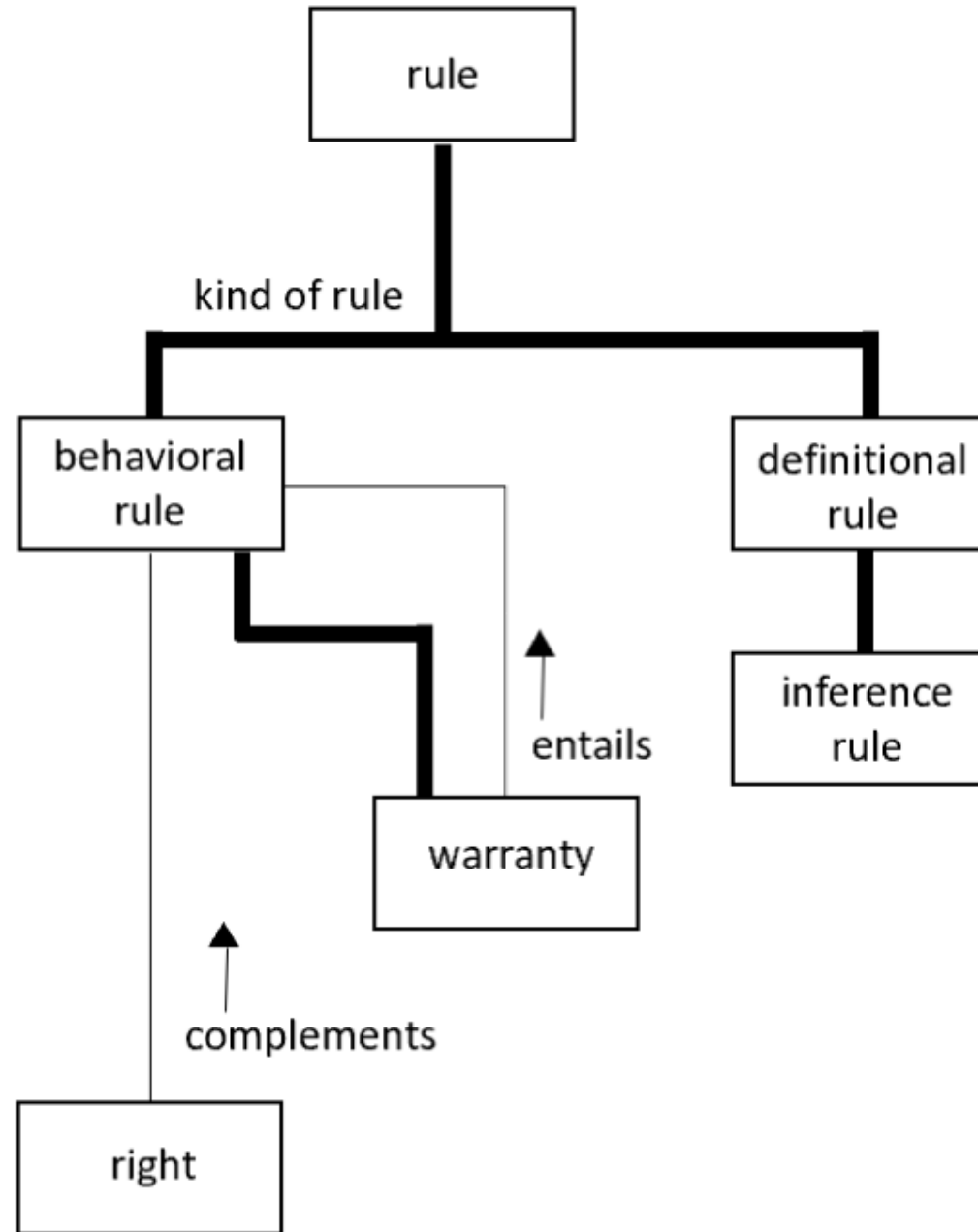


Part 5: Warranties



Warranties:

- Are behavioral rules.
- Entail more behavioral rules as remedies.



Part 6: Permissions

- What are un-rules?

A bank's policy:

A person of any age is permitted to hold a bank account.



Part 6: Permissions

- Why might you want explicit permissions?

A bank's policy:

A person of any age is permitted to hold a bank account.

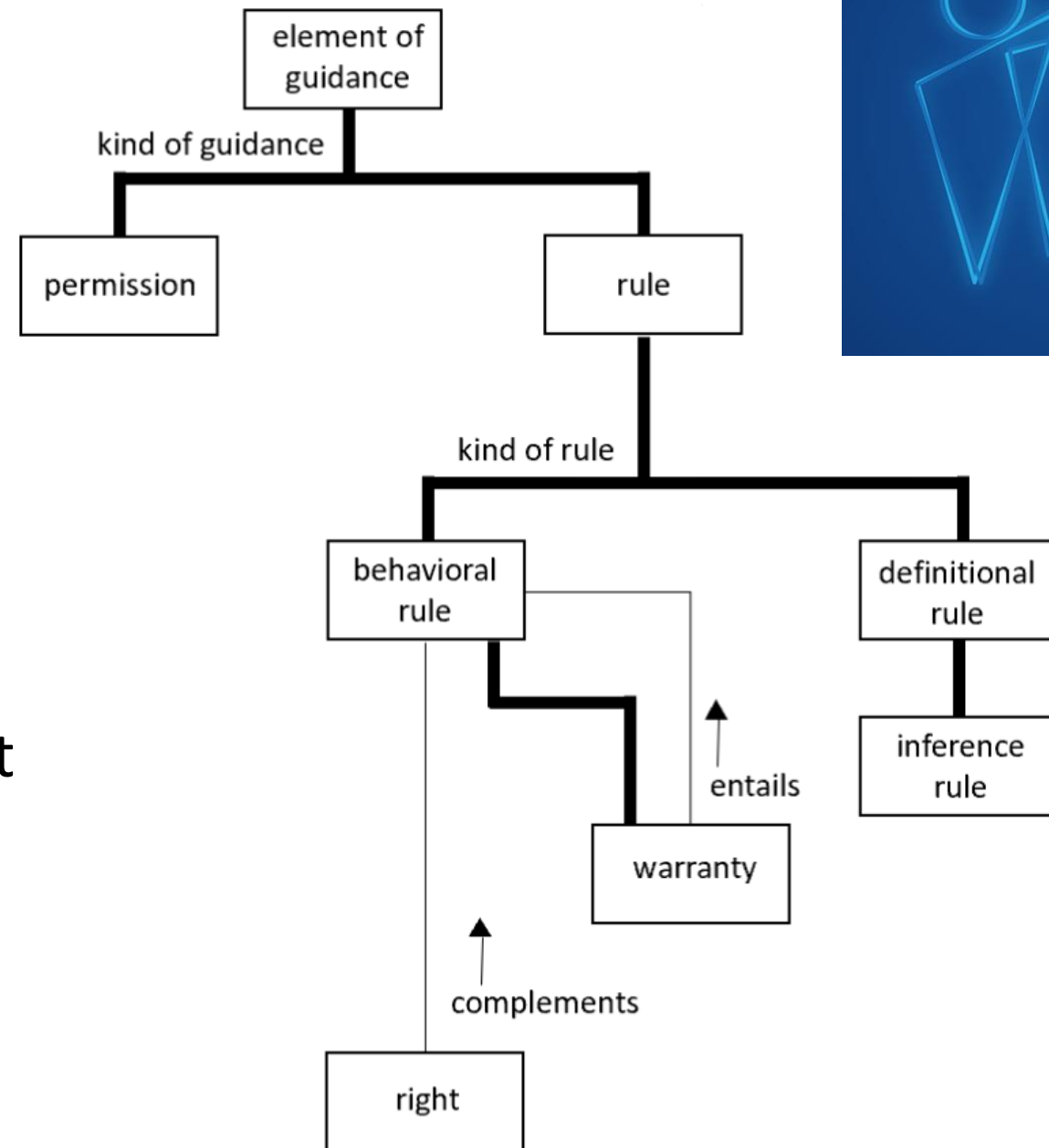


Part 6: Permissions



Permissions:

- Indicate what rules don't disallow.
- Are optional elements of guidance.
- Can conflict with rules (but rules 'win').
- Can't be violated (so they aren't guidelines).



Part 7: Authorizations



The Default Assumption for Rules

Optimistic World:
Anything is permitted unless expressly prohibited.

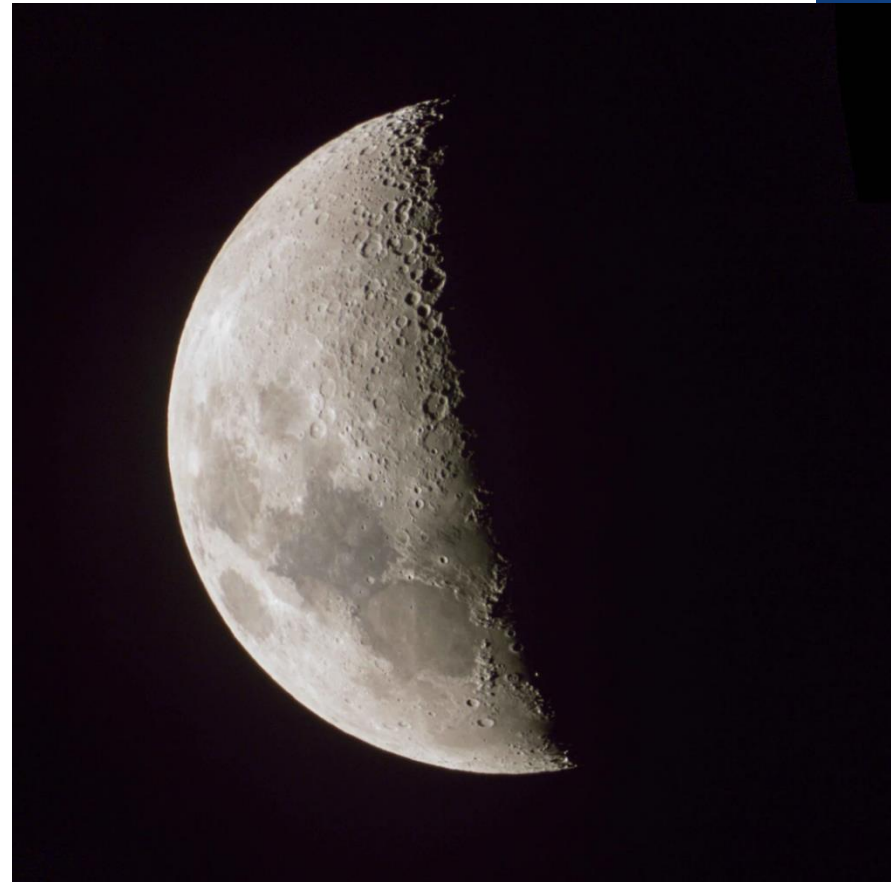


Part 7: Authorizations



Pessimistic World:

*Everything is prohibited
unless expressly
permitted.*



Part 7: Authorizations

Exclusion Zone (Behavioral Rule):
Authorized Access Only

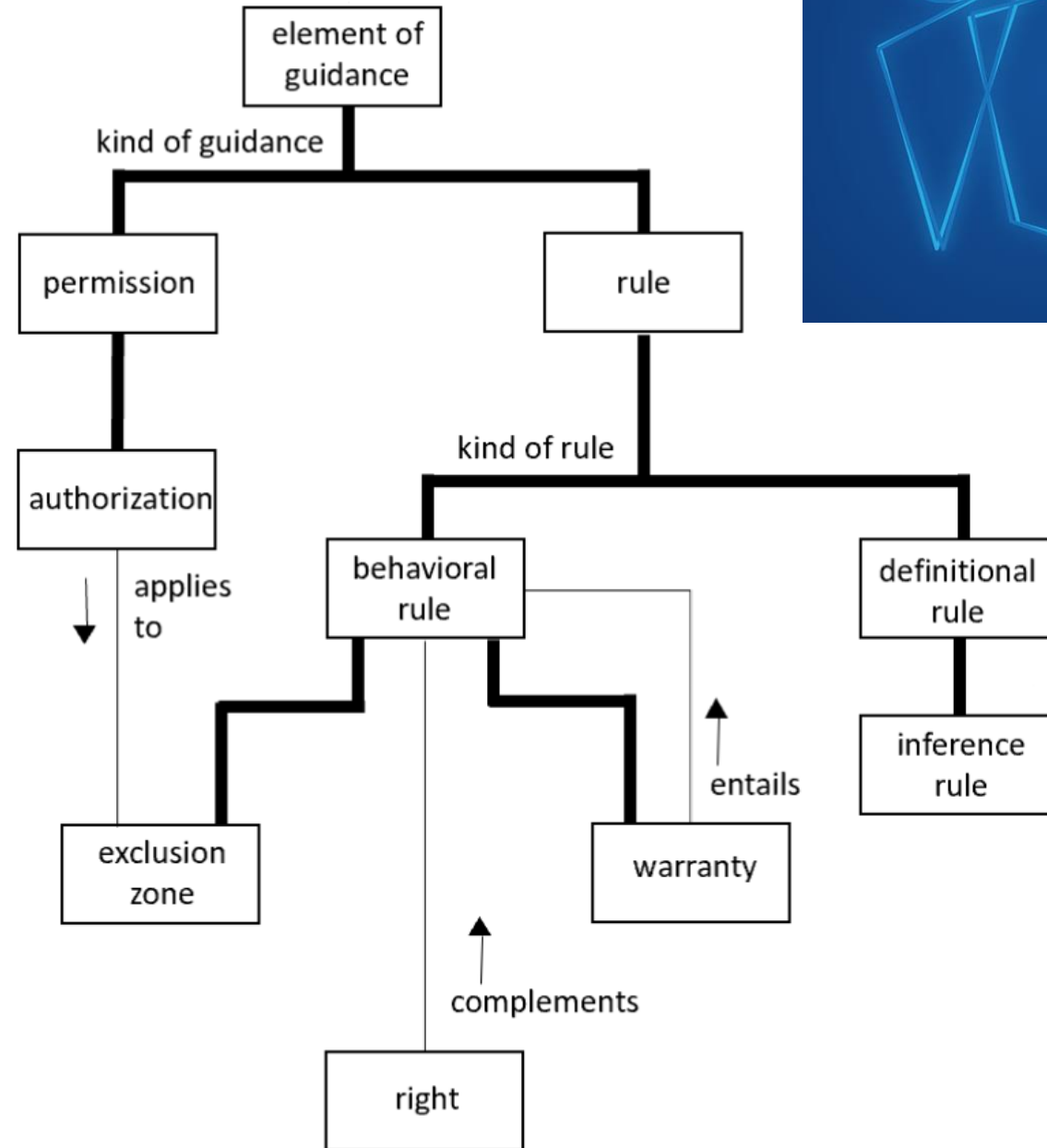
Authorization (Permission):
The Head of Operations is permitted access.



Part 7: Authorizations



- **Exclusion Zone:** a behavioral rule that creates a (limited) pessimistic world.
- **Authorization:** a permission that applies to an exclusion zone.



Conclusion

Seven Kinds of Guidance

- Inference Rules
- Definitional Rules
- Behavioral Rules
- Rights
- Warranties
- Permissions
- Authorizations



Conclusion

The Goal: a comprehensive set of elements of guidance for any business or government in natural language that is directly computable ...



Conclusion

The Goal: a comprehensive set of elements of guidance for any business or government in natural language that is directly computable ...

... and that can be automatically evaluated before deployment for consistency each time new elements are added to, or changed within, the knowledgebase.

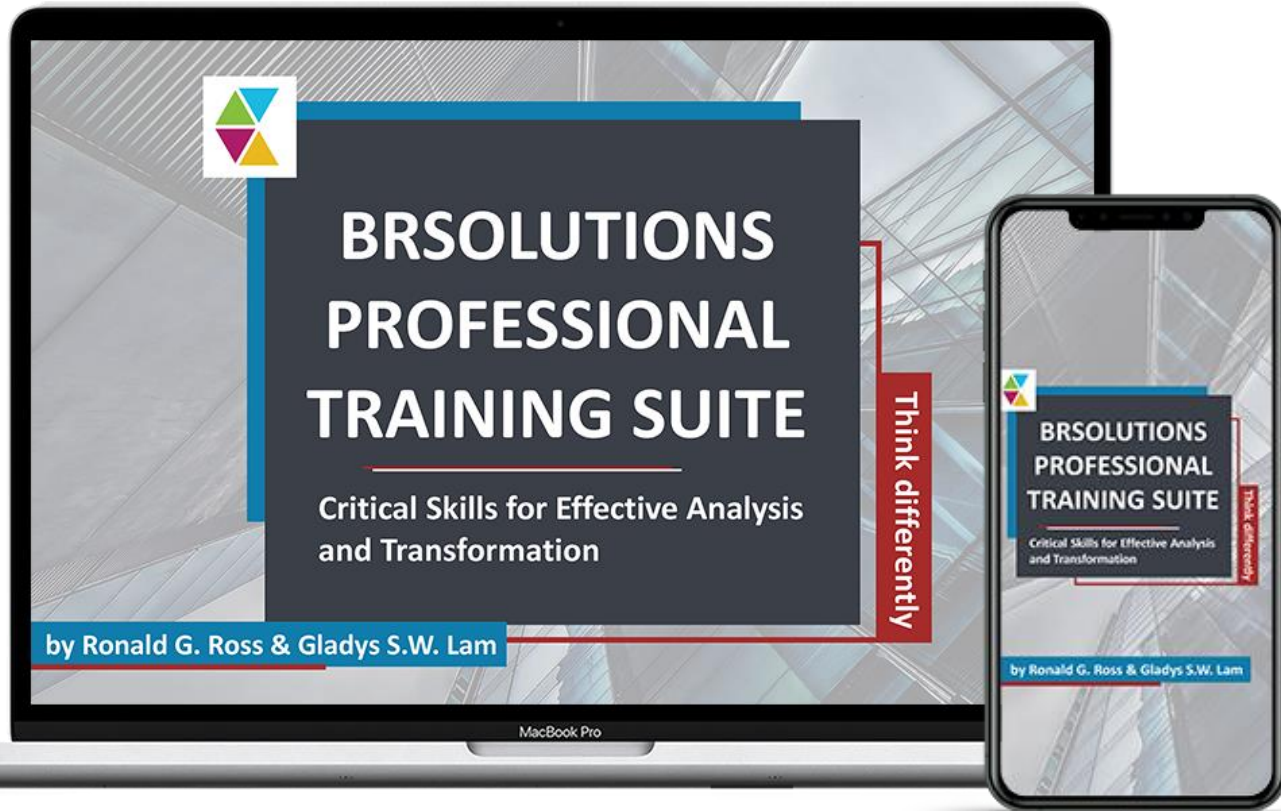


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Thank You!

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