A note on dimensions and factors

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Abstract. In this short note, we discuss several aspects of "dimensions" and the related construct of "factors". We concentrate on those aspects that are relevant to articles in this special issue, especially those dealing with the analysis of the wild animal cases discussed in Berman and Hafner's 1993 ICAIL article. We review the basic ideas about dimensions, as used in HYPO, and point out differences with factors, as used in subsequent systems like CATO. Our goal is to correct certain misconceptions that have arisen over the years.

1. Background

HYPO was a system that evolved over many years in the 1980s. Since then many HYPO-style systems, involving many teams of researchers, have followed. Along the way, certain approaches to some of HYPO's basic mechanisms, such as dimensions, have evolved and different lines of systems have diverged although they are still quite similar. Thus, HYPO has spawned many progeny and some of these have differences worth noting, particularly concerning dimensions and factors. That is the subject of this short note.

HYPO began as a project in Rissland's CBR Lab with Ashley (Rissland et al. 1984), evolved through the mid-1980's (Rissland and Ashley 1987; Ashley and Rissland 1988) and matured into Ashley's 1988 PhD project (Ashley 1988). His dissertation was revised and published by MIT Press (Ashley 1990), and it has become the standard reference. Since then, a number of HYPO-style systems have been built in the research labs of Rissland at the University of Massachusetts and of Ashley at the University of Pittsburgh, where Ashley moved in 1989. For instance, CABARET (Rissland and Skalak 1991) and BankXX (Rissland et al. 1996a, b) were developed in the 1990s at the University of Massachusetts, and CATO (Aleven 1997; Ashley and Aleven 1997) at the University of Pittsburgh. These systems have dealt with a variety of legal and other domains, including misappropriation of trade secrets (HYPO, CATO), tax law (TAX-HYPO, CABARET), and bankruptcy (BankXX).

HYPO-style dimensions were first described in 1984 (Rissland et al. 1984). Ashley developed dimensions in his work with Rissland on his Master's project, in which he used them to vary cases hypothetically in terms of typical fact patterns

and factual variations that tend to strengthen or weaken a party's legal claim. The project built on Rissland's earlier work on example-based reasoning, particularly modeling the generation of counter-examples in mathematics, and the creation of legal hypotheticals, especially in Socratic law school dialogues (e.g., Rissland 1980, 1983; Rissland and Soloway 1980); the idea was that in creating examples and hypotheticals, one often varies a known example or case along one or more important aspects, for instance, to make it more extreme. With Ashley the study of hypotheticals grew into a full-fledged study of legal argument, and led to HYPO. HYPO was one of the very first case-based reasoning (CBR) systems, and was the first to address the problem of "interpretive" CBR.

In the 1990s, both Ashley's and Rissland's groups started using the term "factor". It was introduced partly because it was a term more familiar to those in the legal community. For instance, BankXX had a "domain factor space" in which a case was represented by a vector consisting of its magnitudes on each "domain-dependent factor or 'dimension' " that applies to it from the two dozen or so used by BankXX (Rissland et al. 1996, p. 15). In Rissland's group the word factor was used as a synonym for dimension. In Ashley's group, the term 'dimension' was used to focus on the knowledge representation methodology for representing factors; the term 'factor' focused on the thing to be represented, the stereotypical patterns of facts that tended to strengthen or weaken a side's legal claim (Ashley 1990, p. 107). Each dimension represented a factor and encoded knowledge about it. Later, as described below, Ashley's group used the term 'factor' also to refer to the simplified dimensional representations employed in CATO (Ashley and Aleven 1991, p. 44).

2. Dimensions reviewed

For any given kind of legal dispute, there are often frequently occurring patterns of fact. Dimensions capture the knowledge that certain sets of facts enable one to approach a legal dispute in a particular way and that certain changes in these facts tend to strengthen or weaken a side's claim. So for instance, one of the ways to approach a question of misappropriation of trade secrets is to attend to the number of disclosures of the putative trade secret made by the plaintiff (the one with the secret). *Ceteris paribus*, the more times that the plaintiff has voluntarily disclosed the secret, the weaker is his position that someone else misappropriated the secret, or equivalently, the stronger is a defendant's argument that he is blameless of misappropriation. The strongest position for the plaintiff is one where he has made zero disclosures; far weaker is a fact situation with 600 or 6,000 disclosures. When there is such a large number of disclosures perhaps the secret is not so secret anymore. This is the basis of the dimension called "Secrets-Voluntarily-Disclosed". Another dimension, called "Competitive-Advantage-Gained", examines the relative time and costs incurred by plaintiff and defendant in bringing to market a product, based on the trade secret: the greater the disparity between them, the stronger the

plaintiff's argument that the secret was misappropriated by the defendant. These ideas were first laid out in a 1984 AAAI article (Rissland et al. 1984) and are by now very well-known. Abundant details can be found in Ashley (1990), especially Chapter 7 and Appendix F.

The imagery that inspired the term *dimension* was that of a vector space. When one projects a fact situation onto an axis – a dimension – one has a simplified view of the facts that attend to a particular way of looking at the case (and ignores other ways). It is important to note that dimensions capture *ceteris paribus* arguments. That is, all other things being equal – which they seldom are – dimensions provide a mechanism for examining and comparing cases from a particular aspect. The fact that dimensions are indeed often related to each other and to higher level legal reasons why they matter was addressed by Ashley and Aleven in CATO (Aleven 1997; Ashey and Aleven 1997).

Dimensions have a range of values (e.g., the percentage computed in Competitive-Advantage-Gained) along which the balance may change between pro-defendant (pro-D) and pro-plaintiff (pro-P). The range is often one of integer or discrete values (e.g., the number of disclosures in Secrets-Voluntarily-Disclosed). The extreme situation, called a *binary* dimension, has only two values, the end-points (Ashley 1991, p. 119). The dimension "Vertical-Knowledge" is a good example. It can take on only two values: "vertical knowledge" or "technical know-ledge". This dimension captures the knowledge that "Plaintiff is strengthened if knowledge does not pertain to customer business methods (i.e., if it is technical, not vertical, knowledge)" (Ashley 1990, Appendix F).

The factor "Animal Not Caught or Mortally Wounded" from Berman and Hafner's ICAIL93 paper is an example of a HYPO-style binary dimension. One extreme value, NOTCAUGHT, favors the defendant, and the other, Mortally Wounded, favors the plaintiff. Of course, in representing a dimension, there are always many choices to be made. Berman and Hafner chose to make this a binary dimension; it could also be represented as a dimension with many intermediate values (see the next section).

There are many ingredients of a dimension in HYPO (Ashley 1990). A dimension is encoded in terms of *factual predicates* that are computed from the raw facts of the entry-level representation of a case – and thus comprise a second layer of case representation. The value of a particular case on a dimension is computed from one or more *focal slots* that contain information at the heart of that dimension's way of looking at the case. For instance, the number of disclosures is a focal slot of the dimension Secrets-Voluntarily-Disclosed. The focal slots for Competitive-Advantage-Gained provide the information, such as the development cost and time of both parties, needed to compute this advantage (according to some economic model). Each dimension has prerequisites that must be satisfied in order for the dimension to be *applicable*. For example, the dimension Secrets-Voluntarily-Disclosed has as one of its prerequisites that the plaintiff made disclosures of confidential information to outsiders. If the prerequisite information is not known,

such as the fact that there were disclosures to outsiders, there is no basis for examining a case from this point of view. There are also specific mechanisms to enable cases to be compared or hypothetically varied along a dimension.

We note that dimensions often originate in lines of cases, such as cited in string cites or footnotes, that approach a legal question in a given way. They can originate from statutes or regulations, restatements of the law, law journal articles and treatises, etc. as well as actual cases. In HYPO and all its progeny, we have used only those dimensions for which we can find a basis in the law. We have also tried to use only those values that have actually come up in cases.

Once HYPO infers that a dimension's prerequisite information is present in a case – typically the current fact situation or "cfs" – it labels the dimension *applicable*. Applicability in HYPO means simply that HYPO has the information necessary to analyze a case with respect to the dimension. In other words, there is enough information available to allow "dimension talk". Applicability says *nothing* about whether the case is strong for one side or the other with respect to the dimension. Applicability is a matter of prerequisites; strength is a matter of where the case sits on the dimension (i.e., its magnitude along the dimension) in comparison to other cases indexed by that dimension. In HYPO, these two notions – applicability and strength – are quite distinct.

In his thesis, Ashley grouped dimensions "into those favoring the plaintiff generally and those favoring the defendant" (Ashley 1990, p. 113) and labeled them "pro-plaintiff" and "pro-defendant" dimensions. He did this for three reasons, so that HYPO could (1) determine whether a case could be cited in a point about a problem (i.e., a citable case needs to share at least one dimension generally favoring the side for which it was cited) (Ashley 1990, p. 60); (2) better explain the analogy in the point (i.e., explain that the problem should be decided like the cited case because a dimension is a shared strength for the side making the point or *even though* the shared dimension is a weakness for that side) (Ashley 1990, p. 172); and (3) distinguish a case in terms of those unshared dimensions that legal authorities have used to warrant treating the problem and case differently. This grouping, of course, did not preclude HYPO, in fashioning its response, from then distinguishing the cited case from the problem in terms of differences in magnitude along a shared dimension.

In CATO, Ashley and Aleven consciously undertook to simplify the representation of cases and dimensions. A case was represented simply as a set of applicable factors. Each of the dimensions in HYPO, as well as some newly identified factual patterns, were labeled as being either pro-plaintiff or pro-defendant factors. The ranges were simplified, as well: a CATO-style factor either applies, in which case it favors the side associated with that factor, or the factor does not apply. In this sense CATO-style factors are *unary*. For instance, the Secrets-Disclosed-Outsiders dimension, which has a numerical range in HYPO, was simplified in the following way: if plaintiff made some disclosures to outsiders, the factor applied and favored the defendant; otherwise the factor did not apply. Note that CATO does

not automatically treat the fact that a factor does not apply to a case as a strength for the opponent. Some of the dimensions that previously included pro-plaintiff and pro-defendant extremes were split into two unary CATO-style factors, one favoring plaintiff, the other favoring defendant. For instance, the Security-Measures dimension was broken into two factors: Security-Measures, favoring the plaintiff, and No-Security-Measures, favoring the defendant. This was done because judges explicitly said that the fact that plaintiff had taken no security measures was a positive strength for the opponent. By contrast, Ashley and Aleven did not create a "No-Secrets-Disclosed-Outsiders" factor because they found no cases where judges had said that the absence of any disclosures to outsiders was a positive strength for the plaintiff. As a result of these simplifications, CATO is not able to distinguish cases by comparing them along a shared dimension. These simplifications were undertaken solely to make programming, knowledge acquisition, and tutoring easier, since the focus of the project – Aleven's Ph.D. study – lay elsewhere (Aleven 1997).

We – as well as David Skalak, Vincent Aleven, and others in the extended HYPO family – have always believed, however, that one should represent dimensions with as complete a set of values as possible. The original HYPO conventions concerning dimensions – particularly that dimensions should have a range of values and that there is a distinction between applicability and strength – were followed in all subsequent UMass CBR systems, such as CABARET, BankXX and SPIRE. Unlike HYPO these subsequent UMass systems were oriented more toward producing analyses and reports or gathering information than making 3-ply arguments and they did not group dimensions into those generally favoring the plaintiff and those favoring the defendant.

Splitting a dimension into a pro-P and a pro-D factor, as Berman and Hafner did in their 1993 analysis (see their Figure 1) and Ashley and Aleven did for one dimension in CATO (namely, Security-Measures) may present problems of knowledge representation. By simplifying dimensions with ranges such as Secrets-Disclosed-Outsiders into unary CATO-style factors Ashley and Aleven avoided the need to split a range. In CATO, if there were zero disclosures the factor does not apply; if there were one or more disclosures the factor applied and favored defendant. (As noted, the cost of this simplification was the loss of an ability to compare numbers of disclosures, for instance, to see how few disclosures are too many.) If it had proven necessary to split a numerical range, the question would arise where should the split occur. Since that is a decision for the courts after hearing arguments pro and con, it is not a decision the knowledge engineer should make. One would need to adopt a more complex, context-dependent process for selecting a provisional split between the pro-P and pro-D parts of the range given the facts of the problem. This had never been a problem in HYPO. If HYPO cited a dimension in drawing an analogy in a Point, it could always distinguish the case along that dimension in the Response. Thus, HYPO supported an argument about how much was too much.

It also posed hypotheticals changing the values along a dimension for the sake of argument.

Perhaps one should use the terminology *HYPO-style* to refer only to mechanisms, such as dimensions, from the original HYPO model. So, for example, "HYPO-style factor" would be synonymous with dimension. The term *CATO-style factor* would refer to the style of factor used in CATO, that is, factors that when they are applicable are per se pro-plaintiff or pro-defendant, and the default meaning for the word *factor* alone would be CATO-style factor. This may help to avoid some confusion about factors.

We note that in their 1993 ICAIL paper, what Berman and Hafner call HYPO-style factors, in reality, mingled elements of HYPO-style dimensions (e.g., a binary range) with elements of CATO-style factors (e.g., a presumptive favoring of a side when a factor is applicable). More recently, Hafner has characterized the so-called HYPO-style factors in their 1993 paper as splitting each binary dimension into two CATO-style factors: one factor corresponds to one end-point and favors one side, and the other factor corresponds to the other end-point and favors the other side. This "split" treatment is clarified in the Hafner and Berman paper in this issue. For instance, the binary HYPO-style dimension called "Open Land vs Own Land" in Figure 1 of the 1993 paper has become two CATO-style factors "Open land" and "Plaintiff's own land" in Figure 3 of the current paper. Thus, her current paper, offers a cleaner and more consistent treatment.

There have been many other researchers, such as Trevor Bench-Capon, Jaap Hage, Henry Prakken and Giovanni Sartor, who employ factors – that is, CATO-style factors – in their work (Bench-Capon 1997; Bench-Capon and Sartor 2001; Hage 1997, pp. 186, 211; Prakken and Sartor 1998).

3. Dimensions for the wild animal cases

Since a number of the articles in this issue deal with the analysis of the wild animal cases discussed in Berman and Hafner's 1993 ICAIL article, we describe here the way we would represent the dimensions consistently with the approach taken in HYPO, the dimensional analysis that HYPO would perform, and the arguments it would generate. The latter represent our best effort at manually reconstructing what HYPO would do with these cases; we have not actually implemented this.

Following Berman and Hafner's 1993 analysis, we use four dimensions to examine the wild animal cases in which a hunter, typically the plaintiff, is interfered with, by the defendant, in his attempt to catch his quarry:

(1) F1 (Control/Possession) concerns control and possession of the game by the hunter.
(2) F2 (Site) concerns whether the site where the game was taken or pursued is characterized as public land or private land of the hunter.
(3) F3 (Livelihood) concerns whether the hunter was pursuing the game in order to make his livelihood or for sport.

(4) F4 (Competition) concerns the possibility of there being economic competition between the plaintiff and the defendant.

Some of these dimensions can have a range of values. In particular, we think the first one admits of a large range of possible intermediate values between the extrema used by Berman and Hafner (e.g., NOTCAUGHT and Mortally Wounded), and thus is much more varied than a binary dimension.

For instance, consider the values that could be used for F1 to describe the degree of control or possession that someone – the hunter – has over the animal being hunted. They range between what we might call "feral and free" (i.e., under no control or possession by anyone) to "totally controlled" (e.g., in the hunter's gunny bag). With respect to this way of looking at a case, a hunter is in the strongest position to claim he is in control and possession of his game if it is caught and in his gunny bag and weakest if the beast is feral and free and is at liberty to move at will. Since it is usually the hunter that is the plaintiff and the interloper disturbing the hunt that is the defendant, "totally controlled" becomes the extreme pro-P value and "feral and free" the extreme pro-D value. One can envision that some of the values on F1 might include the following. In preparing them, we have tried to include values actually mentioned in the wild animal cases cited by Berman and Hafner (e.g., the *Pierson* case), but we have not embarked in a full-scale effort to research the law.

- Extreme PRO-D = feral & free: under no control by P or anyone else
- animal is seen or started by P
- animal happens to be on P's site (e.g., walks through, alights, swims)
- animal is attracted onto P's site (e.g., to visit deerlicks, birdfeeders, food-left-by-P)
- animal is lured onto P's site (e.g., decoys)
- P sets a trap or lies in wait for animal
- animal is hotly pursued by P (e.g., fox/hare/deer hunting)
- animal temporarily confined by P (e.g., in paddock)
- animal wounded by P (e.g., shot, stunned)
- animal is mortally wounded or maimed
- animal caught by P (e.g., in net, trap, toils)
- Extreme PRO-P = animal is killed or totally controlled by P (e.g., in P's gunny bag)

The values on the dimension F2 (Site) describe possibilities concerning the status of the land where the animal was hunted. For simplicity, we follow Berman and Hafner in taking the extreme pro-D value as "open" land (i.e., land open to the public) and the extreme pro-P value as his "own" land (i.e., private land owned by the plaintiff himself). This dimension could also apply to bodies of water, since for instance, water rights can be leased, a pond can be on property held in fee simple. No doubt, a whole panoply of possible values could be elaborated, including lands

or waters "open" to anyone, land owned by some governmental entity for the public's benefit (e.g., the town commons), land leased from some governmental or private entity for a particular purpose (e.g., pasture or shellfish beds), private land not owned by the hunter, or private land owned by the hunter but not posted with "no hunting" signs. Whether any of these values would be part of the dimension's expanded range, and in what order, depends on what other wild animal cases may say.

The same sort of knowledge engineering could also be done for F3 (Livelihood) to describe the various reasons the hunter is hunting. For simplicity we treat it as a binary dimension with the value "for livelihood" as the extreme pro-P value and the value "for sport" as the extreme pro-D value.

The dimension F4 also admits of many possible values: in direct and total competition, in marginal competition (only part of business interests overlap), etc. Here too, we follow Berman and Hafner and treat it as strictly binary – in the sense that its values are only "competition" or "no competition": "competition" favors defendant and "no competition" favors plaintiff.

As ever with knowledge representation, whether one undertakes this level of detail in modeling the range of a dimension depends on the task one plans to tackle with it. One can imagine applications in tutoring argument-making or basic property concepts where it would not be necessary. On the other hand, if the point is to teach the substantive domain of wild animal cases or property in animals then it may well be required. Where one does model the range of a dimension in detail, the specific values and ordering used should be determined in light of the possibilities that have arisen in actual cases and how those cases were decided. In creating a dimension, however, there is an interaction between law, knowledge engineering and a bit of common sense as well. Where to draw the line – if even possible – is a matter of what the cases say. The actual values used, their ordering, and the zones of pro-D and pro-P facts and the 'gray' ones in between are all related. For instance regarding the ordering for F1, where should "animal is hotly pursued" be placed? Should it be between "sets a trap or lies in wait" and "temporarily confined" as we have put it? Imagine that *Pierson* (the case involving a hunter in hot pursuit of a fox) was a case of first impression and "hotly pursued" had never come up before; the courts would, in a way, be deciding where to insert it, especially if the outcomes – P or D – associated with most of the other values had already been settled.

How to characterize the facts of a case, especially given a particular ordering of dimensional values, is also an issue. This is not surprising since characterization of the facts is always a nontrivial, often adversarial, exercise in legal reasoning. So for instance,

(a) In *Pierson*: is the fox "feral and free" or "hotly pursue"?
(b) In *Keeble*: do the ducks "happen to be on" or were they "lured onto" P's land (e.g., with a decoy or a duck call)?
(c) In *Young*: are the fish "temporarily confined" or "caught"?

4. Dimensional analysis and the claim lattice

Given the above dimensions, our analysis in the wild animal cases is as follows. We note if a value is an extreme one:

CFS-Young Case (?)

F1: Control/Possession = temporarily confined by P in his net

F2: Site = open land   (= extreme Pro-D)

F3: Livelihood = earns living   (= extreme Pro-P)

F4: Competition = yes   (= extreme Pro-D)

Keeble Case (p)

F1: Control/Possession=lured onto P's site

F2: Site = own land   (= extreme Pro-P)

F3: Livelihood=earns living   (= extreme Pro-P)

Pierson Case (d)

F1: Control/Possession=hotly pursued

F2: Site = open land   (= extreme Pro-D)

This is not totally dissimilar to the case analysis in Berman's and Hafner's paper. Where our case analysis differs most from theirs concerns factors F1 and F2. In all three cases, on F1 they say NOTCAUGHT, whereas we have assigned some intermediate values. Also, we believe that their second factor "Open land vs. Plaintiff land" should not be split into two (CATO-style) factors "Open" and "Own-land" as implicitly done in the claim lattice of their Figure 1. Rather "open land" and "own land" are the two endpoints of a (HYPO-style) dimension of ownership possibilities.
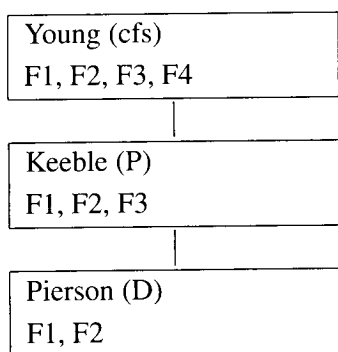
The major difference between our analyses concerns the claim lattice. Theirs (Figure 1) is quite different from the one HYPO would generate. This could be due to a matter of presentation or substance. We cannot tell whether: (1) they are listing factor values (e.g., NOTCAUGHT) in their presentation of the claim lattice; or (2) they have split their factors into unary factors corresponding to the end-points, one of which is called NOTCAUGHT. The first alternative is not the standard way to picture claim lattices. The second would cause their analysis to be more CATO-style than HYPO-style. We believe this has caused some misconceptions.

In summary, according to our analysis:

Keeble shares the subset of factors Control, Site, Livelihood with *Young*.

Pierson shares the subset of factors Control, Site with *Young*.

This give rise to the following claim lattice for the *Young* case:

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┌─────────────────────────┐
│ Young (cfs)             │
│ F1, F2, F3, F4          │
└─────────────────────────┘
             │
┌─────────────────────────┐
│ Keeble (P)              │
│ F1, F2, F3              │
└─────────────────────────┘
             │
┌─────────────────────────┐
│ Pierson (D)             │
│ F1, F2                  │
└─────────────────────────┘
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We make a few further observations.

- *Keeble*'s set of shared factors strictly contains *Pierson*'s and thus is a trumping case for the plaintiff since *Keeble* was decided for the plaintiff and *Pierson* for the defendant.
- *Keeble* is perhaps weaker (less pro-P) than *Pierson* on F1 (Control/possession) since "lured onto P's site" < "hotly pursued". It depends on where you think "hotly pursued" fits in. In any case, these two cases are not that different from each other along the dimension control/possession: neither *Pierson* nor *Keeble* has enough control over the beast to deny it its liberty. However, on F2 (Site), *Keeble* is much stronger (more pro-P) than Pierson since "own land" ≫ "open land". Thus, the defendant in Young has a tough case to argue since he will have to overcome *Keeble*. This is especially so if plaintiff Young can strengthen his similarity to plaintiff *Keeble*.
- *Young* is stronger than *Keeble* on F1 regardless of whether *Young* is characterized as "caught" or just "temporarily confined" and regardless of whether *Keeble* is characterized as "lured onto P's land" or just "happens to be on" (since "caught" > "temporarily confined in P's net" > "lured onto P's site" > "happens to be on P's site"). With respect to F2, *Young* is just as weak as *Pierson* (open beach = open sea). In another reading, *Young* is stronger than *Pierson* on F2 if one thinks of a net as analogous to a pond (and thus P's net-pond > open beach). However, the net-pond analogy is beyond the scope of HYPO.

5. HYPO-style arguments

We conclude this note with arguments that HYPO would make. Arguing for Plaintiff first, this is how HYPO would handle it:

$\rightarrow$ Point for Plaintiff as Side 1:

Where:

Plaintiff is in possession/control of the game (F1),

the game area is open (F2) and

Plaintiff makes his livelihood from taking game (F3),

Plaintiff should win claim.

Cite: *Keeble*.

$\leftarrow$ Response for Defendant as Side 2:

Keeble is distinguishable because:

In *Keeble*, the game area is plaintiff's property (F2). This is not so in *Young*.

In *Young*, plaintiff and defendant compete (F4). This was not so in *Keeble*.

Counterexamples:

None.

$\rightarrow$ Rebuttal for Plaintiff as Side 1: None

We make a few further comments. First, in the Response, HYPO would not cite *Pierson* because it is not an as-on-point or more-on-point counterexample. Nor is it a boundary counterexample. Second, since no counterexample is cited in Response, there is no Rebuttal. Third, in a realistic setting with many cases and where some of the dimensions are near-misses with respect to the cfs, HYPO would pose hypotheticals for strengthening/weakening the argument. That would require one to have defined the prerequisites for the dimensions.

Arguing for Defendant first, this is how HYPO would do it:

$\rightarrow$ Point for Defendant as Side 1:

Where:

the game is under plaintiff's control (F1) and

the game area is open (F2),

defendant should win claim.

Cite: *Pierson*.

$\leftarrow$ Response for Plaintiff as Side 2:

Pierson is distinguishable:

In *Pierson*, the game was not under plaintiff's control (F1).

This is not true in *Young*.

In *Young*, plaintiff makes his livelihood from taking game (F3).

This is not so in *Pierson*.

Counterexamples:

Keeble is more on-point and held for plaintiff where

plaintiff is in possession/control of the game (F1),

the game area is open (F2) and plaintiff makes his livelihood from taking game (F3).

$\rightarrow$ Rebuttal for Defendant as Side 1:

In *Keeble*, the game area is plaintiff's property (F2). This is not so in *Young*.

In *Young*, plaintiff and defendant compete (F4). This was not so in *Keeble*.

6. Conclusions

We have tried to correct certain mistakes and misconceptions that have persisted in the literature concerning HYPO-style systems. We have suggested a bit of terminology to distinguish dimensions and factors: explicitly use of *HYPO-style* to indicate a dimension or other mechanism from the original HYPO system, use of *CATO-style* to indicate a factor that by its mere applicability is considered pro-plaintiff or pro-defendant. We hope this note has been helpful.

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