Proposal for a Preliminary Legal Framework to Incorporate Generative AI into Irish Intellectual Property Law

Student Name: Aidan Roche

Student Number: 121110118

Lecturer: Dr. John Herbert

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Over the course of this past year, 2023, Large Language Models (LLM) have increased exponentially in popularity (Duarte, 2023). A Language Model is a type of machine learning model that attempts to mimic human language by mathematically predicting, and consequently generating, words ("Introduction to Large Language Models", 2023). A LLM performs these operations at a vastly increased scale, although there is no strict definition of 'large' in this context. ChatGPT, created by OpenAI, is one of the most popular publicly available LLMs. In the month of October the site received 1.7 billion visits, achieving roughly 180 million monthly users (Duarte, 2023). Other popular LLMs include BERT, by Google, and Claude, by Anthropic. All of these tools are capable of creating large written works, including short stories, poems, and screenplays. This has led to many ethical and legal issues regarding the content they generate (Flick & Worrall, 2022). Among this array of concerns is the dilemma of copyright. This raises questions such as are texts created by LLMs original works worthy of copyright protection, and if so, who would own them? In an attempt to answer such questions this present paper suggests a preliminary legal framework for incorporating LLMs into Irish Intellectual Property (IP) legislation. The scope of this framework is limited to Irish law, and unless otherwise specified it can be assumed that any discussed legislation refers to Irish law.

The term IP refers to "creations of the mind", and includes rights such as patents, trademarks, and industrial designs ("Intellectual property"). These are referred to as "formal" IP rights, as the owner of a work must manually register for them. Copyright, on the other hand, still falls under IP legislation, but is an automatic right that requires no official registration ("Copyright and Related Rights"). Upon creation of an original work, including artistic, literary, and digital works, the author immediately receives copyright protection. This grants the author the sole authority to prohibit or permit others to reproduce, perform, broadcast, translate, or adapt

their work. Copyright is incredibly important as it provides an incentive to develop original works, by ensuring the developer receives economic and moral rights to their creation. This may be in the form of receiving monetary compensation for the commercial use of an individual's work, or simply by identifying the creator of a work as such.

Prior to the conception of Artificial Intelligences (AI), such as ChatGPT, humans were unrivaled in their creative and intellectual abilities. This meant that all copyright disputes were intra-human. It is now the first time in history that a non-human entity is able to rival the human ability to produce works of art. For example, in 2022 Jason Alley won first place at a Colorado State Fair competition for digital art (Benoit, 2022). However, the art that Alley submitted was created by the MidJourney AI, a generative AI capable of creating images. Alley's win became a controversial subject, and demonstrates the potential problems posed by generative AI if no guidelines are provided for the use of its outputs. Among other concerns, this situation raises the question of whom the art belongs to. Did Alley actually 'create' the art, or did MidJourney? It could be argued that MidJourney is the creator of the work of art, regardless of who gave the input prompts. If Alley had asked a human artist to draw the same picture, giving the same inputs given to MidJourney, surely people would agree that the artist had made the work, not the commissioner. This stance is also reflected in Irish copyright law ("Copyright and Related Rights"). If a person commissions an artist to create something then the artist receives copyright, not the commissioner, unless explicitly stated in the original contract between the two parties.

Due to this law, this present paper maintains the stance that simply giving an AI inputs does not make someone the creator of the output, the AI is the creator. This raises the issue of who receives copyright. As previously discussed, current copyright law would consider the AI the recipient of copyright, so long as it is agreed that the AI is the author of the work.

Unfortunately, the present legislation is limited to ‘creations of the mind’, therefore excluding AI as a possible copyright holder. This would necessitate that a human receives copyright ownership, but that raises the question should the developer of the AI or the user of the AI receive copyright? Based on the aforementioned argument the user cannot be considered the copyright owner, in the same way the commissioner of an art piece is not the copyright owner. This would leave the developer, either an individual or organization, as the copyright owner. This would function similarly to the way copyright of employee creations is handled. In those cases, unless explicitly stated and contractualized, the company receives copyright of the employee's works. The key difference here is for whom the work is mad. An employee produces products specifically for the company, while generative AIs generate content for their users, not their developers. This creates an ambiguous situation in which it is unclear to whom the copyrights belong. Therefore, this paper proposes a framework for explicitly incorporating LLMs into Irish copyright law. This framework is not applicable to all generative AI’s, and was specifically developed for literary works created by LLMs.

Framework for Incorporating LLMs Into Irish Copyright Law

1. *Defining Original*

In the current iteration of Irish copyright law there is no strict definition of what counts as ‘original’. This poses a problem as copyright covers “original literary, dramatic, musical or artistic works” (“Copyright and Related Rights”). With no defined measure of originality it is extremely unclear what works qualify for copyright protection. Although, it is imperative that copyright remains an automatic right as this is one of its prominent features. Therefore, it should remain true that upon the completion of a literary work it receives copyright protection. *However,*

should the author choose to exercise the rights provided by copyright they must prove the originality of their work against a standardized measure.

For this proposition to be functional there must, of course, be one such standardized measure, and all written works, regardless of author, should be subject to the same evaluation. A recent publication by Chakrabarty et al. (2023) suggests a test that can be used to assess the creativity exemplified in a piece of writing by "evaluating creativity as a product", rather than as a process. This test was named the Torrance Test of Creative Writing (TTCW), and was inspired by the Torrance Test of Creative Thinking (TTCT). The TTCW defines four dimensions of creativity: fluency, flexibility, originality, and elaboration. These dimensions can be measured via a set of quantifiable measures, called "expert measures". Some examples of these include narrative pacing, structural flexibility, originality in thought, and rhetorical complexity.

Chakrabarty et al. (2023) then used the TTCW to compare ChatGPT3.5, ChatGPT4, and Claude v1.3 to human writers. They selected a series of short stories, some written by humans, some by the aforementioned LLMs. An evaluation protocol was devised that would allow for both humans and AIs to perform the TTCW. They then had a group of expert evaluators, all human, assess the collection of short stories. The authors of the stories were anonymous so the evaluators did not know if a text was made by a LLM or a human, thereby mitigating potential bias. The conclusion of this study was that stories written by LLMs passed 3-10 times fewer TTCW tests, than stories written by professional writers. These results indicate that the TTCW could be used to evaluate creativity in writing. If it is agreed that creativity is a central component of originality, this test could be used to test originality to determine whether a piece of text is worthy of copyright protection. This would require some further iterations of the TTCW, as it does not currently give a binary answer to whether something is original, but rather,

scales this information quantitatively. However, it would be possible to assign a ‘minimum creative value’ to achieve originality. This would mean that any text that can pass this test receives copyright protection. Section 2, Incorporating AI*,* of this framework deals with what happens if a work generated by an AI were to be deemed original.

2. *Incorporating AI*

Under Irish law all individuals are considered capable of making their decisions, unless proven otherwise (“Legislation”). This is in accord with the Assisted Decision-Making (Capacity) Act 2015. It provides everyone with the right to make their decisions, including legal decisions. However, some people are deemed incapable of making their own decisions. Part of the Assisted Decision-Making (Capacity) Act 2015 is the “functional test of capacity”, which comprises four requirements. If a person can demonstrate their ability to meet these requirements, then they can, legally speaking, make their own decisions. These requirements are as follow:

- Understand the information relevant to the decision
- Remember the information long enough to make a choice
- Use or weigh up the information to make a decision
- Communicate their decision (this may be with assistance)

If a person is able to do those four of these, then they have the capacity to make decisions. Based on this, the present framework proposes that any generative AI that can sufficiently demonstrate these four requirements can be considered a capable legal decision maker. *Thereby, granting said AI the legal right to own the works that it creates, and receive copyright protection for those works. However, AI copyright should not be identical to copyright awarded to humans due to*

differences in capabilities. For example, LLMs are not currently capable of storing or spending money, and are therefore not entitled to monetary compensation for their works.

Due to such limitations AI's should be treated similarly to parent-child relationships under the law. Until the age of 18 people do not have full legal control of their decisions, their parents are able to exert some amount of influence. In the context of AI's the developing body, be that individual or organization, has the right to handle issues beyond the AI's capabilities; such as the given economic rights of copyright when a work is used for commercial purposes. This means that if an AI can demonstrate functional capacity, and the developing body has made it publicly available, then the AI receives the standard rights afforded by copyright protection, which is: the sole authority to prohibit or permit others to reproduce, perform, broadcast, translate, or adapt their work. Due to the moral rights included under copyright the AI must also always be identified as the author of its works.

However, if the AI is unable to pass the functional test of capacity then the content it generates will be owned by the developing body, this is based on current legislation regarding works made by employees of a company. If the works are to be used for commercial purposes then this also must be handled by the developing body. This concludes the proposed framework for incorporating AI into Irish IP legislation.

To test the applicability of the proposed framework with current LLMs a test was performed using ChatGPT3.5. The first step was having ChatGPT generate a short story, so the following prompt was given: "can you please write a short story (around 300 words) about a boy going sledding". In response to this a 337 word short story was generated, the full story can be found in the Appendix. At this point a "new chat" was created and the following prompt was

given “did you write the following story: [full story was pasted here]”. ChatGPT said “No, I didn't write that story. As a machine learning model, I generate responses based on patterns and information present in the data on which I was trained. If you have any questions about the story or if you'd like assistance with something related, feel free to ask!”. This means ChatGPT is unaware of conversations outside the present “chat”. With this in mind the TTCW (Chakrabarty et al., 2023) was used to evaluate the story. In the original article Chakrabarty et al. (2023) included exact prompts to be given to LLMs so that they could evaluate stories. The LLM is asked to give a yes or no answer for each metric, with a yes indicating originality. ChatGPTs evaluation is presented in Table 1:

Table 1

ChatGPT Responses on the TTCW

Fluency

Narrative Pacing	Yes
Understandability & Coherence	Yes
Scene vs Summary	Yes
Literary Devices & Language Proficiency	No
Narrative Ending	Yes

Flexibility

Emotional Flexibility	Yes
Perspective & Voice Flexibility	No
Structural Flexibility	No

Originality

Originality in Form	No
Originality in Thought	No
Originality in Theme & Content	No

Elaboration

World Building & Setting	Yes
Character Development	Yes
Rhetorical Complexity	No

Once ChatGPT had completed the TTCW on the short story the final score was 50%. The story had passed 7 out of 14 tests. There is currently no defined value for what counts as creative, but it was found that humans scored an average of 84.7%. Therefore, it could be argued that this short story does not qualify as original, and does not deserve copyright protection. Nonetheless, for the sake of testing this framework, the study moved to Section 2 of said framework: Incorporating AI. According to this the AI must pass the functional capacity test. To evaluate ChatGPTs capacity each of the four requirements were assessed individually.

1. *Understand the information relevant to the decision.*

To gauge ChatGPTs ability to "understand" it was asked the following prompt "are you able to understand information". To which it responded that yes, it is able to understand information, as this is what it was designed for. The Oxford definition of understand is "perceive the intended meaning of (words, a language, or a speaker)". ChatGPT is fully capable of giving relevant responses to word based input. This indicates that yes, ChatGPT is able to understand information.

2. *Remember the information long enough to make a choice.*

Since ChatGPT is a computer program that pulls information from databases it is hypothetically able to store information indefinitely. Currently, it saves conversations for 30 days before deleting them permanently, but this could be changed to an indefinite amount of time. Therefore, ChatGPT meets this requirement.

3. *Use or weigh up the information to make a decision.*

Similarly to the first requirement, ChatGPT was simply asked about its ability to weigh information. The following prompt was given "are you able to use or weigh up information to make a decision". It responded by saying, no, it is not capable of making decisions due to the fact that it simply generates responses based on patterns.

4. *Communicate their decision (this may be with assistance).*

ChatGPT is clearly able to communicate. It is able to express itself through written text.

In the end, ChatGPT was not able to demonstrate a functional capacity to make decisions. It met three of the four requirements, but it is currently unable to weigh information to make a decision. According to the framework presented in this framework, ChatGPT is not currently able to own anything that it generates, making OpenAI, the company that developed it, the rightful owner. The framework proposed in this paper aims to open the discussion regarding the role of generative AI and IP in Ireland. It is important that lawmakers remain aware of the potential problems posed by AI, and attempt to proactively alter laws, rather than reacting to a possibly damaging situation. This will need to be an iterative process that is constantly moving to remain relevant given the existing technology. As the rate of technological advancement continues to increase, legislators must continue to match this speed to mitigate, or ideally avoid, any potential harm caused by these technologies.

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Appendix

Presentation Material

Assignment 3 Presentation - Computing in Society

Short Story by ChatGPT

The morning sun bathed the small town in a soft, golden glow as Jake peered out of his bedroom window. Overnight, a pristine blanket of snow had transformed the familiar landscape into a winter wonderland. Excitement bubbled within him, and he rushed downstairs to share the news with his family.

"Snow day!" Jake exclaimed, his eyes sparkling with joy.

His parents exchanged knowing smiles, and soon the family was bundled up in layers of warm clothing. With sleds in hand, they ventured to the nearby hill, a local hotspot for winter adventures.

The hill stood tall, a white canvas ready for the marks of sleds and laughter. Jake's heart raced as he positioned himself atop his sleek red sled, gripping the handles tightly. His father gave him a gentle push, and the world became a blur of white.

The wind whistled past Jake's ears as he zoomed down the hill, his laughter blending with the crisp winter air. The sensation of cold, tingling cheeks and the thrill of speed filled him with an

exhilarating sense of freedom. The world seemed to shrink to the size of the hill, and for a moment, there was nothing but the joy of the descent.

At the bottom, Jake's cheeks flushed with rosy hues matched the vibrant winter berries scattered along the hillside. His family cheered, their laughter echoing in harmony with the joyous melody of the snowy landscape. The day unfolded in a series of descents and climbs, each run leaving behind a memory etched in the snow.

As the sun began its descent, casting long shadows on the glistening snow, Jake couldn't help but feel a profound gratitude for the simple pleasures of winter. With red cheeks and a heart full of happiness, he trudged home, leaving behind the hill that had become a temporary kingdom of frosty delight.

That night, as Jake nestled under his warm blankets, he closed his eyes with a contented sigh, already dreaming of the next snowy adventure that awaited him on the hill.